



ACCESSION N^o

CLASSIFICATION

105,766

CONFIDENTIAL

Division C

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

NUMBER 1—1925

JANUARY, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN
NUMBER 1—1925—JANUARY, 1925
FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |
| | | | |

MAY 19 1938

99570

V
1
M78

CONTENTS

GENERAL:

| | Page |
|---|-------|
| Foreign naval programs and policies..... | 1-5 |
| Naval comparison of certain countries..... | 6-9 |
| Aviation comparison of certain countries..... | 10-11 |
| Miscellaneous items..... | 12-13 |

ARGENTINA:

| | |
|----------------------|-------|
| Target practice..... | 14-16 |
|----------------------|-------|

BRAZIL:

| | |
|----------------------|----|
| Naval aviation | 16 |
|----------------------|----|

CHINA:

| | |
|------------------------------------|-------|
| Military-political conditions..... | 17-24 |
|------------------------------------|-------|

FRANCE:

| | |
|------------------|----|
| Naval note | 24 |
|------------------|----|

GERMANY:

| | |
|---|-------|
| New light cruiser for the German Navy..... | 24-26 |
| Aviation note | 26 |
| A critical study of the system of defense of Helgoland Bay..... | 26-31 |

GREAT BRITAIN:

| | |
|---------------------------------|-------|
| Fire control—H. M. S. Hood..... | 31-32 |
| Mammoth airship | 32-34 |
| Miscellaneous notes | 34-36 |

ITALY:

| | |
|---|-------|
| Estimate of the strategic situation of Italy..... | 36-48 |
| Present naval establishment..... | 48-52 |

JAPAN:

| | |
|--|-------|
| Report of visit to Oppama naval air station..... | 52-58 |
| Expanding Kasumigaura airdrome | 58 |
| Miscellaneous naval notes..... | 59-60 |
| Notes from the Japanese press..... | 60-65 |

RUSSIA:

| | |
|----------------------|-------|
| Aviation notes | 65-66 |
|----------------------|-------|

SWEDEN:

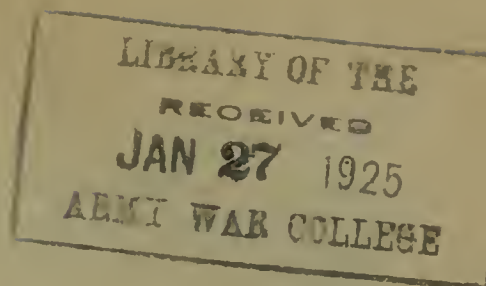
| | |
|-----------------------------------|----|
| Operations of Bofors Factory..... | 67 |
|-----------------------------------|----|

SPAIN:

| | |
|------------------|----|
| Naval note | 67 |
|------------------|----|

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.



GENERAL

FOREIGN NAVAL PROGRAMS AND POLICIES

1 October, 1924

BRITISH NAVAL POLICY AND FUTURE CONSTRUCTION

From parliamentary debates and other sources, it appears that British naval policy is based on a one-power standard under the provisions of the Washington treaties. During the debates in the House of Commons of 25 February, 1924, the Prime Minister made a statement to the effect that a cabinet committee had been appointed to consider the requirements of the navy as regards the replacement of units of the fleet in accordance with a definite program. The recommendations of this committee are not as yet published.

Certain points in general naval policy are to be noted:

(1) That the British Government considers the capital ship as the backbone of England's naval strength, to which all other types are coordinated.

(2) That the British Admiralty is making every effort to obtain a separate naval aviation service, distinct, except in certain matters of supply, from the Royal air force. A united air force has not worked out satisfactorily to the British Navy.

(3) That the main strength of the British fleet is now concentrated in the Mediterranean, based on Malta and Gibraltar.

(4) That the importance of building up Singapore into a strong naval base to support the lines of communication to Australia and the East is being continually stressed. In this connection it may be remarked that parliamentary debates show an increasing sentiment in favor of this course of action, and it is believed that in the near future the expansion of Singapore naval facilities will be approved. In view of the fact that the greater part of the fleet is now based in the Mediterranean, it is believed possible that the funds necessary for Singapore may be obtained by reducing the number of home dock yards in active employment.

(5) That the self-governing Dominions are relied upon to assist in matters of naval defense by building up their own naval organizations. The empire cruise of the *Hood*, *Repulse*, and certain light cruisers during 1923 and 1924 aided materially in arousing interest in matters of imperial defense. Australia has recently authorized the construction of two 10,000 ton light cruisers, first line, one of

which will probably be built in Australia, while the other will be built in England. The addition of these two vessels makes a total of 10 light cruisers, first line, authorized and building for the British Empire.

From the information available, the following are considered to be the generally accepted features of the British naval building program, additional to the replacements in capital ships provided for under the provisions of the treaty of Washington:

(1) The building of five 10,000-ton light cruisers, first line, each year for the next 10 years. Extensive under-water protection, anti-air defense, good seagoing qualities, and wide radius of action to be features in the design.

(2) The construction of destroyer leaders and destroyers, first line, on the basis of replacements of the older units, and to meet any possible threat in foreign submarine construction.

(3) The construction of a limited number of large tonnage and wide radius of action submarines.

The following are comments on the battleships, first line, *Nelson* and *Rodney*, to be completed during 1925: These ships will have a standard treaty displacement of 35,000 tons (35,560 metric tons). Their length at water line will be 702 feet. Their extreme beam will be 106 feet. Their mean draft at standard displacement will be 30 feet. Their main armament will consist of nine 16-inch 50 caliber wire-wound guns in three tripple turrets situated in the forward part of the ship. There will be no stern fire from these guns. The secondary armament will consist of either twelve or sixteen 6-inch guns mounted by pairs in light closed turrets. The speed will probably be about 21 knots. These ships will be heavily armored. The main belt will be 14 inches thick. In addition, elaborate antiair and under water protection will be provided.

COST OF BRITISH NAVY

Schedule (B), part 4 of House of Commons, bill No. 241, 1924, shows that a total of £59,693,251 has been provided in money grants from the consolidated fund of the United Kingdom to cover the expenses of the navy during the year ending 31 March, 1925. Of this amount, item No. 8, section 2, shows £7,317,900 for the materials for shipbuilding, repairs, maintenance, etc., at dock yards and naval yards at home and abroad, while item No. 8 section 3, shows £5,935,272 for contract work for shipbuilding, repairs, etc. Item No. 1 shows that the sum of £14,332,900 has been allowed for the pay of 100,500 officers, seamen, boys and royal marines. It may be remarked that very little change has taken place in the personnel strength of the British Navy during the last year.

JAPAN

JAPANESE NAVAL POLICY AND FUTURE CONSTRUCTION

Japan is proceeding with vigor to build up her fleet in types not limited by the treaties of Washington in accordance with her standing plans. Recent circumstances have caused some delay in her building program for fleet auxiliaries, such as tenders, etc. Japan is active in improving the naval air service.

Japan is making every effort to provide adequate fuel oil reserves and to develop new sources of supply. There has been general comment on the increasing amount of war material and chemical shipments that have been going forward from Europe, especially Germany, to Japan.

It is considered that the underlying element in Japan's naval policy is her determination to dominate the East. As table C shows, Japan has a very large tonnage of light cruisers, first line, and fleet submarines, first line, under construction. Types now building are characterized by size, speed, and radius of action. A study of recent types reveals that wherever possible additional speed and weight of broadside fire is aimed at over corresponding types abroad, even though in gaining these elements a certain sacrifice may have to be made in weights of protection.

In regard to future programs of construction, it is impossible to give detailed information. Provision for the navy is made in such a manner as to make it extremely difficult to determine just what is in progress. It is understood that the following amounts are contemplated for new noncapital ship construction in the years as set forth:

| | Yen |
|--------------|--------------|
| 1924-25..... | 88, 000, 000 |
| 1925-26..... | 88, 000, 000 |
| 1926-27..... | 80, 000, 000 |
| 1927-28..... | 49, 000, 000 |
| 1928-29..... | 96, 000, 000 |

The total naval expenditures for the fiscal year 1924-25 amounts to 238 million yen.

According to recent Japanese press, the navy department has handed its budget for 1925-26 to the finance department. It calls for an expenditure of yen 260,500,000, which is an increase of yen 24,000,000 over the revised present year's budget.

FRANCE

FRENCH NAVAL POLICY AND FUTURE CONSTRUCTION

French naval policy appears to be based on the determination to maintain such forces as will counter Italy in the Mediterranean and at the same time will be capable of maintaining open lines of communication to Africa for the purpose of the transfer of troops. To this end, French programs of develop-

ment include a considerable number of light cruisers, first line, destroyer leaders, destroyers, first line, and submarines. Light, fast forces with submarines of increased radius of action and power, backed by battleships, combined with the command of the air, are the elements on which France is relying to carry out her objectives in the Mediterranean, which again has become the focus of political activities in Europe.

France's future building program contemplates the laying down of the following units in the years as stated:

French ships to be laid down from July, 1925, to July, 1928

| Type | Year 1925 | Year 1926 | Year 1927 | Year 1928 | Year 1929 | Year 1930 | Year 1931 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | No. of units | No. of units | No. of units | No. of units | No. of units | No. of units | No. of units |
| C. L. light cruisers, first line (10,000 tons)..... | 0 | 2 | 0 | 2 | ----- | ----- | ----- |
| D. L. destroyer leaders (2,400 tons)..... | 5 | 5 | 5 | 0 | ----- | ----- | ----- |
| D. D. destroyers, first line (1,450 tons)..... | 6 | 6 | 6 | 0 | ----- | ----- | ----- |
| S. C. cruiser submarine (3,000 tons)..... | 1 | 1 | 0 | 0 | ----- | ----- | ----- |
| S. S. submarine, first line (1,300 tons)..... | 9 | 9 | 9 | 8 | ----- | ----- | ----- |
| Small cruisers, mine layers (4,000 tons)..... | 1 | 0 | 1 | 0 | ----- | ----- | ----- |
| A. O. oil trawlers (10,000 tons)..... | 2 | 0 | 0 | 2 | ----- | ----- | ----- |
| Credits, millions of francs..... | 280 | 450 | 450 | 450 | 430 | 220 | 38 |

The total money provision for the French Navy from 1 January, 1924, to 1 January, 1925, is 1,534,361,654 francs.

NOTE.—In connection with an estimate of the situation in the matter of foreign naval policies, attention is called to the fact that, to date, France has not confirmed by legislative action certain of the Washington treaties, and that therefore these treaties are not as yet binding on any of the nations concerned.

The treaties in question are No. 2, the treaty in relation to the use of submarines and noxious gases in warfare; No. 6, a treaty between all nine powers relating to principles and policies to be followed in matters concerning China.

ITALY

ITALIAN NAVAL POLICY AND FUTURE CONSTRUCTION

Italian naval policy is apparently dictated by the necessity of countering France in the Mediterranean and the need of upholding Italian colonial interests in Africa. The conclusion of the treaty with Yugoslavia has changed the political strategy of Italy, which was formerly based on the Adriatic. The western Mediterranean has now become the focus of defensive interest. A strong naval base will be established at Cagliari in southern Sardinia, with a supporting base in southern Sicily near the trade routes by which Italy is provisioned.

The sum of twenty million lire has been allocated to initiate the construction at Cagliari. The defenses of western Italy, Sardinia, and Sicily are to be strengthened. In February, 1924, Signor Mussolini made the following statement before the board of admirals:

"From the land point of view Italy is adequately protected, as she possesses the impregnable Nevo and Brenner ridges. From the sea point of view the situation is quite different. Thence I am resolved to increase slowly but steadily the efficiency of the navy. I pledge myself before you to do my utmost so that the navy will get what it needs to be ready for any emergency."

The following is considered to be the probable future construction program:

Italian ships to be laid down from July, 1925, to July, 1928

| Type | Year 1925 | Year 1926 | Year 1927 | Year 1928 |
|--|-----------------|-----------------|-----------------|-----------------|
| | No. of units | No. of units | No. of units | No. of units |
| C. L. light cruisers, first line (10,000 tons) | 2 | 0 | 0 | 1 |
| D. D. destroyers, first line | 4 | 4 | 4 | 4 |
| S. S. submarine, first line (1,300 tons) | 4 | 4 | 4 | 4 |

The Italians have developed a new torpedo of about 23 inches diameter and increased range and speed. As the result of their war experience in the Adriatic, they continue to maintain a large number of high-speed motor boats for torpedo attack purposes. They are also experimenting in design of this general type of vessel.

The Italian naval budget for 1924-25, as of 1 July, 1924, amounts to 924,046,000 lire.

(CV) AIRCRAFT CARRIERS, FIRST LINE (8-INCH GUNS MINUS; 20,000 TONS PLUS; 20 KNOTS PLUS). BUILT, BUILDING, OR AUTHORIZED

| | | | | | | |
|------------------------|----------|----------|----------|----------|--------------------|----------|
| Lexington, 33,000..... | 2 66,000 | 1 22,790 | 3 56,300 | 1 22,790 | Kaga, 26,900..... | 1 26,900 |
| | | | | | Akagi, 27,000..... | 1 27,000 |
| Total..... | 2 66,000 | 1 22,790 | 3 56,300 | 4 79,090 | | 2 53,900 |

(OCV) AIRCRAFT CARRIERS, SECOND LINE (8-INCH GUNS MINUS, 20,000 TONS MINUS; 20 KNOTS MINUS)

| | | | | | | |
|----------------------|----------|----------|----------|-----------|-------------------|----------|
| Langley, 12,700..... | 1 12,700 | 1 12,700 | 1 14,450 | 1 14,450 | Hosho, 9,500..... | 1 9,500 |
| | | | | | | |
| Total..... | 1 12,700 | 1 12,700 | 2 25,400 | 2 25,400 | | 1 9,500 |
| Grand total..... | | 3 78,700 | | 6 104,490 | | 3 63,400 |

(AV) AIRCRAFT TENDERS

| | | | | | | |
|---------------------|----------|----------|----------|----------|---------------------|---------|
| Wright, 14,240..... | 1 14,240 | 1 14,240 | 1 3,070 | 1 3,070 | Wakameya, 5,875.... | 1 5,875 |
| | | | | | | |
| Total..... | 1 14,240 | 1 14,240 | 2 10,150 | 2 10,150 | | 1 5,875 |

¹ Dates of completion range from 1895 to 1908.² Dates of completion range from 1911 to 1922.³ Dates of completion range from 1899 to 1912.

NOTE.—If all light cruisers, first and second line, completed since 1 January, 1912, and those now building or authorized are considered, the figures are as follows: United States, 10 of 75,000 tons; British Empire, 57 of 318,370 tons; Japan, 28 of 171,005 tons.

AVIATION COMPARISON OF CERTAIN COUNTRIES 1 October, 1924

| Item | United States | | Great Britain | | Japan | | France | | Italy | |
|---|-------------------|--------------------------------------|------------------------|----------------|---------------------|---------------------|----------------------------|---|--------------------------------------|--------------------------------------|
| | Army ¹ | Navy | General service | Fleet air arm | Army | Navy | Army | Navy | General service | Navy |
| Unit of organization..... | Squadron... | Squadron... | Squadron... | Flight..... | Squadron... | Squadron... | Squadron... | Squadron of 3 sections. | Squadron... | Squadron. |
| Total number of units..... | 51 ² | 19 ³ | 43 | 20 | 40 | 17 | 132 | 6 | 50 | 19. |
| Number of aircraft in unit..... | 10 | Standard, 18, now 12. ⁴ | 12 ⁵ | 6 ⁶ | 10 | 10 | 8 observation; 10 pursuit. | 3 sections of 3 planes + 1 replacement pursuit. | 14 | 14. |
| Number of units at home..... | 37 | 15 | 25 | | 37 | | 124 | | | |
| Number of units abroad..... | 14 | 4 | 18 | | 3 | | 8 | | | (7). |
| Number of aircraft, exclusive of school and training in service, i. e., actually in commission. | 500 ⁸ | 117 ⁹ | 600 ¹⁰ | 120 | 400 | 170 | 1,338 | | 65 | (7). |
| Number of aircraft in reserve..... | 432 ¹¹ | 20 per cent all types. ¹³ | 100 per cent. | 100 per cent. | Not known | Not known | 3,000 ¹⁰ | 106 | 4 | (7). |
| | | | | | | | | | 1,385 ¹¹ | (7). |
| | | | | | | | | | Approximately 50 per cent all types. | Approximately 50 per cent all types. |
| ACTIVE AVIATION PERSONNEL | | | | | | | | | | |
| Total officer personnel..... | 963 | 610 | 2,902 ^{14 15} | (16) | 500 | 250 | 1,757 | 214 | 466 | 177. ¹⁷ |
| Flying officers in above officer personnel. | 815 | 361 | (15) | (15) | 200 | 200 | 986 | 93 | 234 | 88. ¹⁷ |
| Enlisted men of Air Service..... | 9,351 | 3,623 | 26,262 ¹⁶ | (16) | 4,600 ²⁰ | 2,250 ²⁰ | 31,676 | 3,016 | 9,321 | 3,597. ¹⁷ |
| Enlisted pilots in above enlisted personnel. | 50 | 104 | (15) | (15) | | | 2,105 | 172 | 320 | 122. ¹⁷ |

RESERVE AVIATION PERSONNEL

| | | | | | | | | |
|---|-------|-----|-------|------|-------|-------|------|------|
| Reserve officer* personnel | 6,706 | 218 | 747 | (21) | 4,327 | 110 | 430 | (21) |
| Flying officers in above officer personnel | 4,486 | 218 | 747 | (21) | (21) | (21) | 170 | (21) |
| Reserve enlisted men of Air Service | 141 | 60 | 6,705 | (21) | (21) | 1,225 | (21) | (21) |
| Enlisted pilots in above enlisted personnel | 61 | | (21) | (21) | (21) | (21) | (21) | (21) |

* Data United States Army as of 1 July, 1924, but approximately the same for 1 October, 1924.

² Attack 2; bombardment, 8; observation, 14; pursuit, 6; school, 15; service 3; headquarters, 1.

³ Includes 4 training squadrons.

⁴ Operating 12 instead of 18, due to shortage of funds.

⁵ 12 for single engine squadrons, 10 for twin engine squadrons.

⁶ 6 for single engine aircraft; 5 for twin engine aircraft.

⁷ Included under general service.

⁸ Approximately as of 1 July, 1924.

⁹ In addition, 67 aircraft at naval air bases. The figure 117 represents aircraft with strictly fleet units.

¹⁰ Approximately.

¹¹ Includes immediate reserve.

¹² Observation, 336; bombardment, 33; pursuit, 63; total, 432.

¹³ Lack of funds has prevented at times complete reserve.

¹⁴ In addition, 112 cadets.

¹⁵ Includes all aviation ratings ashore and afloat (1,877) and all regular Navy (1,746) aviation shore stations.

¹⁶ One of the air estimates, 1924-25, provides pay for a total aviation personnel of 35,000.

Officers:

| | |
|-----------------|-----|
| Royal air force | 341 |
| Regular navy | 84 |
| | 425 |

Men:

| | |
|-----------------|-------|
| Royal air force | 2,618 |
| Regular navy | 117 |
| | 2,735 |

In comparison with naval aviation, United States, the above personnel can only be considered as a partial comparison. For complete comparison a portion of the administrative, training, and supply, etc., personnel of entire royal air force should be added.

See note under "United States," which gives an estimate of comparison of total British naval aviation as—

| | |
|----------|-------|
| Officers | 1,016 |
| Cadets | 28 |
| Men | 8,439 |

¹⁷ Approximately.

¹⁸ 2,661 pilots, officers, and men, entire royal air force, including fleet air arm.

¹⁹ The strength of the royal air force, 1 October, 1924, was as follows: 3,253 officers, 112 cadets, 28,880 airmen. Includes 341 officers, 2618 men shown in ⁽¹⁶⁾.

²⁰ All mechanics connected with Japanese shore aviation station are civilians.

²¹ Information not available.

²² In addition, 91 officer student pilots.

NOTE.—Figures for Japan are estimates.

NOTE.—The comparison above between U. S. Navy officers and men with officers and men of the fleet air arm, Great Britain is due to the organization of the royal air force, but a partial comparison in the case of Great Britain. On 1 October, 1924, the strength of the royal air force was 3,253 officers, 112 cadets, and 28,880 airmen. Of these totals approximately 2,302 officers and 20,731 airmen were in home stations, such as air ministry, training stations, supply depots, manufacturing plants, etc.; the duty performed being for both that portion of the air force detailed to the naval air arm and that portion serving in cooperation with the army and as a separate air force. A portion of the supporting administrative, training, and supply personnel of the entire royal air force at home should be added to the figures given for the fleet air arm for a fair comparison. It is obvious that, due to the organization of the royal air force, it is impossible to obtain officially figures covering the additional supporting personnel to the fleet air arm and that the numbers of such additional personnel can only be given by estimate. From the information available and a study of the British air force the conclusion is reached that 1,096 officers, 78 cadets, and 8,439 men are performing duties similar to those performed by the personnel of the U. S. naval aviation. In other words, these are the numbers that would be required to carry on aviation in the British Navy if a separation from the royal air force was made to-day.

NOTE.—In addition to the above there are about 1,000 officers and men in Dominion air forces.

NOTE.—No information available.

MISCELLANEOUS ITEMS

| Item | United States | | Great Britain | | Japan | | France | | Italy | |
|--|-----------------|-------------------------|-------------------------------------|--------------------------|-------|----------------------------------|---|--------------------------------------|-----------------|------|
| | Army | Navy | General service | Fleet air arm | Army | Navy | Army | Navy | General service | Navy |
| Plans of future expansion, units to be added. | | 1925-26, 1-4 squadrons. | 1924-25, 1-16 squadrons. | 1924-25, 2-52 squadrons. | | By 1 January, 1925, 3 squadrons. | 64 squadrons. ² | 44 squadrons. ² | 25 squadrons. | (1). |
| Plans for future expansion, airplanes to be added. | About 250. | 1925-26, 46. | 1951. | 301. | | 30. | 641 ² | 396 ¹ | (3) | (4). |
| Additional aviation personnel, officers and men, planned. | | Officers, 75; men, 460. | 1924-25, 1-3, 000 officers and men. | | | | 10,000 officers and men. ² | 7,000 officers and men. ¹ | (1) | (3). |
| Aircraft production; number of units to be delivered, fiscal year 1923-24. | 51 | 163 | 2401 | | | | 2,000 (all types), ² 1924 ² | (3) | (3) | (2). |
| Aircraft production; number of units to be delivered, 1924-25. | All types, 109. | 1401 | All types, 500. | | | | 2,000 (all types). ² | (3) | Year 1925, 520. | (1). |

¹ Approximately.

² Period for this development is believed to be about 5 years.

³ Information not available.

⁴ Approximately, during next 5 years.

⁵ Included under Army production.

Note.—The present approved plan of expansion for the royal air force involves an ultimate strength of 84 squadrons, of which about 50 will be for home defence. Ultimate personnel, 40,000.

Note.—No detailed information available on Japan in these particulars.

LIGHTER-THAN-AIR CRAFT, BUILT

| United States | Great Britain | | | | France | | | | Italy | | | |
|---------------|---------------|---------------------|---------|----------|--------|------|---------------------|--------|----------|-----------|------|---------------------|
| Type | Name | Cubic feet capacity | Length | Diameter | Type | Name | Cubic feet capacity | Length | Diameter | Type | Name | Cubic feet capacity |
| Rigid. | Sheridan | 2,289,561 | 630'-2" | 78'-0" | Rigid. | R-31 | 1,050,000 | 643 | 78'-9" | Semirigid | N-1 | 672,000 |
| Do. | Los Angeles | 2,764,461 | 658'-4" | 90'-8" | Do. | R-36 | 2,101,000 | 672 | 78'-0" | Do. | Do. | Do. |
| | | | | | | R-37 | 2,000,000 | | | | | |

LIGHTER-THAN-AIR CRAFT, AUTHORIZED

| | | | |
|------------|---------------------------------|-------|-------|
| Rigid..... | R-101 ⁴ \$ 5,000,000 | 720' | 140' |
| ..... | R-100 ⁵ \$ 5,000,000 | ..... | ..... |

¹ Being reconditioned for test trials preliminary to new construction.

² Ex-German Warbirdern.

³ In storage, not finished.

⁴ To be built by Air Ministry military purposes.

⁵ To be built by Burney interests for Government eventual use. Commercial.

NOTE.—Small non-rigids are not considered for purposes of comparison.

AVIATION BUDGETS, MILITARY AND NAVAL

| United States | Great Britain | Japan | France | Italy |
|---|--|-------|--|---|
| Navy: Fiscal year ending 30 June, 1925..... | Royal air force: Fiscal year ending 31 March, 1925..... ^{1,2} | | Fiscal year 1923, total navy..... | Fiscal year ending 30 June, 1925..... |
| Navy: Amount new aircraft in above..... | Amount new heavier than air: Aircraft in above..... | | Fiscal year 1923, total army..... | Total air, 399,000,000 lire..... ⁽⁴⁾ |
| Fiscal year ending 30 June, 1925..... | Supplementary air estimates: Lighter than air new units..... | | Fiscal year 1923, Secretary for Air..... | For new aircraft in above, about..... |
| Army: Reappropriation from previous year..... | | | Fiscal year 1923, advanced credit..... | 6,000,000 |
| | | | Fiscal year 1923, expended in Germany..... | |
| Army: Amount new aircraft in above..... | | | Fiscal year 1923, colonial..... | |
| | | | Total appropriation..... | |
| | | | Amount new aircraft in above..... | |

SUBSIDIES GRANTED CIVIL AVIATION

| None..... | Fiscal year ending 31 March, 1925.. | Subsidies granted, 1923: francs..... | Subsidies granted in form of postal concessions; amounts not known. |
|-----------|-------------------------------------|--------------------------------------|---|
| | \$363,000 | \$2,072,100 | |

¹ Includes appropriation for fleet air arm.

² The appropriation for 1923-24, £18,605,000.

³ Additional to appropriation, £19,742,000.

⁴ Includes both army and navy. No information as to separation of appropriations.

⁵ Total appropriation, francs 764,218,890, at 20 francs to the dollar, \$38,210,940.

⁶ Includes new aircraft for both army and navy.

⁷ Subsidies granted 1924 to be about the same as for 1923.

NOTE.—No information available on Japanese aviation budgets.

NOTE.—The fiscal year ends 31 December. The 1924 appropriation has not yet been voted, but is similar to the 1923 budget. It is understood that the 1925 estimates for navy will amount to \$6,089,990.

NOTE.—Subsidies, civil aviation are included in the air budgets of the respective countries.

NOTE.—No information available on Japan on subsidies civil aviation.

ARGENTINA

TARGET PRACTICE

November, 1924

Division battle practice of the second naval division, Argentine Navy, and night torpedo defense practice of the "Buenos Aires"

At 7 a. m. 28 November, in company with Admiral Daireaux, chief of staff, we went aboard the *San Martin*, flag ship of Admiral Fliess, commanding Second naval division, anchored in the new port of Mar del Plata.

The ships present were as follows:

Second naval division (training division), Rear Admiral E. Fliess: *San Martin*, armored cruiser; *Belgrano*, armored cruiser; *Garibaldi*, armored cruiser; *Buenos Aires*, armored cruiser. Destroyers, Lieut. Commander Francisco Lajous: *Jujuy*, *La Plata*. Special Ships: *Sacramento*, midshipmen's training ship; 3 A boats, mine layers, 1 tug.

School division, Capt. J. J. Cros: *Almirante Brown*, old coast defense ship; *Rosario*, river gunboat; *Parana*, river gunboat. Air forces, Lieut. Commander Marcos Zar: 3 F-5-L's, 3 Vickers, amphibians.

About 7.30 a. m. the *Garibaldi*, with the target in tow, proceeded to sea.

At 8 a. m. the President of the Republic arrived and went aboard the cruiser *Buenos Aires* to witness firing, manuevers, review, etc.

After saluting the President the *San Martin* and *Belgrano* stood out and prepared for practice.

About 10 a. m. the *Buenos Aires*, escorted by two destroyers, stood out to witness firing.

The program for the day was as follows: Division battle practice by *San Martin* and *Belgrano*; scouting and spotting by aircraft; tactical manuevers by second division, school division; laying smoke screen and torpedo attack by destroyers; review of ships by President on *Buenos Aires*; night torpedo defense practice by *Buenos Aires*.

The conditions for the division battle practice were as follows: Firing ships, *San Martin* and *Belgrano*. Guns to fire (starboard batteries), *San Martin*, 4-8-inch and 5-6-inch; *Belgrano*, 2-10-inch and 7-6-inch. Number of rounds, 7 per gun main battery; 8 per gun intermediate battery. Method of firing, main and intermediate caliber to fire by salvo separately; pointers firing on bell from control stations. (There is no director installation.) Target, old tug ex-*Azopardo* in tow of *Garibaldi*. Range 7,000 meters.

Speed of firing ship, 16 knots; speed of firing target, 7 knots. Firing division and target steaming in same direction.

General plan: Aircraft to search for target and report its position to flagship by radio.

San Martin and *Belgrano* to approach target in line of bearing until within about 8,000 meters; then make a change of course of not less than 30° away from target and open fire when target bore a little forward of the starboard beam, distant approximately 7,000 meters.

San Martin to fire a ranging salvo with her 8-inch guns, followed by a ranging salvo from the *Belgrano* with 6-inch guns. Then ships to fire salvos in succession.

Aircraft to report fall of shots. Photographs to be taken from aircraft and from the towing ship *Garibaldi*. This plan was carried out.

Although there was a moderate sea and the ships were rolling and pitching considerably, the firing was very good. There were no ragged salvos. The splashes were well bunched. There were no casualties.

Aircraft spotters made two corrections "up 400" and "down 300"; other salvos reported on.

About 10 minutes after firing ceased and before observing ships reached the target it sank by the stern.

Three aircraft were used for spotting, taking pictures and observing.

Practice was conducted efficiently and without unnecessary noise and confusion.

After the division firing was finished the *Garibaldi* and *Buenos Aires* joined the *San Martin* and *Belgrano* and the ships were exercised at tactical maneuvers upon flag signals from the flagship *San Martin*.

Later the school division came out, preceded by the two aircraft and the two destroyers.

Aircraft reported position of second division and destroyers laid smoke screen to protect school division and later made torpedo attack on head of second division under cover of smoke screen.

After these exercises were finished ships formed column, dressed ship, and were reviewed by the President from the *Buenos Aires*.

For the night torpedo defense practice the plan was as follows: Firing ship, *Buenos Aires*; target, 8 by 5 meters, towed by *Belgrano*; speed of firing ship, 15 knots; speed of target, 6 knots; number of runs, 24. Guns to fire (port batteries), first run, 2-6-inch; second run, 3-4.7-inch. Number of rounds, three per gun for 6-inch; six per gun for 4.7-inch. Range, 2,000 meters. Method of firing, salvo firing and pointers firing on bell signal from central station.

General plan. *Belgrano* to tow target: *San Martin* to take position about 500 meters on port bow of *Belgrano*. *Belgrano* and *San Martin* to illuminate target with their after searchlights upon signal from *Buenos Aires*. *Buenos Aires*, with all lights out, from position about 5,000 meters on port quarter of towing ship, to proceed on parallel course to target to position on port bow of target: then turn and pass target on opposite course about 2,000 meters abeam, opening fire with port 6-inch battery when target bore just forward of port beam. Repeat for 4.7-inch battery. This plan was carried out.

The first run, three 6-inch salvos were fired. First two were well over; the third splashed near target. The second run, six 4.7-inch salvos were fired. Most of the salvos went over, but the last two fell near the target.

BRAZIL

NAVAL AVIATION

1 December, 1924

The following data is supplied governing aviation (naval) in Brazil.

1. Planes: Observation, 16; pursuit, 10; bombing, 10; others, 18.

NOTE.—All constructed abroad.

2. Personnel: Officers, 25; men, 300; civilians employed, 20.

3. Aircraft (serviceable): Total planes, 54; dirigibles, none.

Remarks.—Condition good, but all are war-constructed planes bought from the United States, England, and Italy. Those purchased from Italy were reconditioned abroad in 1921-22.

4. Efficiency, fair.

5. Training (pilots): Estimated rate in war: At the end of 6 months, 50; at the end of 12 months, 100. Average number of enlisted men in training, about 30 per year (mechanics). There were 4 in Europe 1923-24. In 1921 the number of pilots trained was 7; in 1923 one class of 9 pilots was trained; in 1924 one class of 4 pilots completed ground training only. No other pilots trained.

6. Airplane manufacture, none.

7. Airplane carriers, none.

8. *Political situation as regards aviation.*—At present writing (November, 1924) naval aviation is at a standstill, due to revolutionary conditions. Many pilots are antigovernment, and 22 of the 39 pilots are held under arrest.

CHINA

SUMMARY OF THE MILITARY-POLITICAL CONDITIONS

1 December, 1924

With the coup d'état of October 23, 1924, the civil war which has been raging since September 3, 1924, entered its final and inevitable stage. I believe that peace is now assured, and that it has good prospects of enduring for some considerable time.

I believe the following brief résumé correctly reports motives and events to date:

Chang Tso-lin, head of the Fengtien Party and ruler of Manchuria, Sun Yat-sen, head of the Kuomintang and ruler of Canton, and Tuan Chi-jui, leader of the Anfu Party, with his lieutenant, Eu Yung-heiang, who commanded the only remaining Anfu forces, united in a plot to overthrow the Chihli Party, in control of the Central Government.

Chang Tso-lin was actuated by ambition and a desire for revenge upon his enemy, Wu Pei-fu, the military overlord of the Chihli Party; Sun Yat-sen by a desire to bolster his waning strength by an alliance with the powerful Chang Tso-lin and to upset the existing order of affairs in Peking to his own and his party's advantage; Tuan Chi-jui, as leader of the Anfu Party, by the desire of that party to regain supremacy in Chinese affairs. In the breast of none of these leaders was a willingness to cooperate with the Chihli Party, to aid it by counsel or force, or to acquiesce in any of its plans. They were not only political "outs," but they were bitter and uncompromising enemies to those who were politically "in" and were determined to carry their opposition to violent means. Had the Chihli Party been patriotic in membership, principle, and action, it would not have altered their enmity nor determination. In their extenuation it may be said that the Chihli Party was hopelessly corrupt and depended for its continued power upon military strength. Nothing short of superior military strength would drive it from office.

In pursuance of this plot, Chang Tso-lin devoted himself to increasing his military strength, raising a large army and completing a modern arsenal. He contributed financial assistance to Tuan Chi-jui's lieutenant, Lu Yung-hsiang, in Shanghai, and to a less extent to Sun Yat-sen. The latter made a disappointingly small showing of strength, and becoming involved in differences both in his party and with the people of Canton, was finally neglected as any other than a minor factor.

Considerable impetus was given the plans of the plotters by the secret accession to their ranks of Feng Yn-hsiang and Wang Cheng-pin, important Chihli Party leaders.

With the completion of his arsenal in Mukden, and a large war chest, Chang Tso-lin was apparently ready for a concerted attack in the summer of 1924. A coup was planned for about the time of the dragon boat festival. It was at this time that the extent of the plot and its membership came to the knowledge of this office. In this connection it may be said that in China it is practically impossible to get official news of important events before they actually transpire. The Chinese do not trust each other, and certainly not foreigners. Curiously enough, however, for all their caution, many Chinese are unable to resist the temptation to pose before their foreign friends as actors in some great and impending drama. From half confidence due to this characteristic, spring the rumors with which Peking is always teeming, and for those who curtly dismiss all rumors as unreliable there is the standing rebuke that some 20 per cent of rumors are changed by events into accurate forecasts.

From all that can be learned it seems probable that the coup planned for June was the seizing of Peking by Feng Yu-hsiang's soldiers, with subsequent action that is now without interest beyond the fact that it would have anticipated the coup of October 23 and averted much bloodshed. For some unknown reason action was deferred until September.

There is every reason to believe that Wu Pei-fu became informed of the plot and that he was aware of its growing menace to him. Similarly that Chi Hsieh-ynan, second only to Wu in the Chihli Party councils, was aware of the closing trap.

Wu was in Loyang, in Honan, which had been his headquarters since his retirement to it from Peking after his successful campaign against Chang Tso-lin in 1922. There he had control of the Han-Yang Arsenal, and was in command of a force of approximately 75,000 troops, in effect his personal army.

Chi was in Nanking in command of 30,000 troops.

Wu and Chi were bitter rivals for leadership in the Chihli Party. Wu is primarily a soldier, a bold, courageous fighter—with a self-esteem as a general out of all proportion to his actual ability, with a mind intolerant of opposition and a marked inability to hold the loyalty of senior subordinates. Chi is a poor soldier but a suave and accomplished politician. Both are nationalistic, though Wu more so than Chi, and neither is antiforeign except that they hate and distrust the Japanese. Both pay a devoted loyalty to the titular head of the Chihli Party, Tsao Km, to whom they stand in the Chinese relationship of "younger brothers." This loyalty on the part of Wu has been of a blind, unreasoning character that, though the object of it is unworthy and hated by the Chinese, has raised Wu immensely in Chinese estimation. It is in accord with their

best and most beloved traditions and ethics, and if Wu survives his present reverses will have much to do with his eventual rehabilitation.

In the summer of 1924 occurred severe floods in northern China. Vast sections of the northern plains were inundated and remained so for weeks. To Wu and Chi it seemed a heaven-sent opportunity. They could sink their personal differences, crash the forces of Lu Yung-hsiang about Shanghai, and then turn a united front on the common foe, Chang Tso-lin. One jaw of the trap would have been destroyed before it could be sprung, while Chang, unable to move because of the floods, was impotent in Mukden.

Sufficient cause for war with Lu was promptly found and the fighting began. Simultaneously all Chihli troops began mobilizing south, and Fengtien troops north of the wall. A general war was inevitable from the firing of the first shot of the Chekiang-Kiangsu conflict.

From the beginning things went badly for Chihli. It had been thought that Lu would not hold out in Chekiang more than two weeks. Instead he held out from September 3 to October 13 and wrecked the flower of the Kiangsu forces before treachery in his rear defeated him.

Hasten as he might, Wu could not match the speed of the Fengtien troops that were at all vital places before him. When, finally having dispatched Feng Yu-hsiang with the third army to Jehol, and Wang Huai-ching with the second army to Hsifengkou, he joined the first army at Shanhaikwan, on October 12, determined on a thrust against the Fengtien left that would take him "to Mukden in two months," it was only to find that he was too late. The initiative had been taken from him. Fengtien troops had forced the pass 9 miles inland from Shanhaikwan, at Chinmenkou, had poured down to Shihmenchia, and opposite Chinwangtao, threatened his whole army with disaster. For a moment the clouds seem to lift. News came of Lu's collapse and flight from Shanghai. Kiangsu reinforcements would be available. Transports were hastily collected at Tangku and Hsinho and troops embarked that Wu hoped to land on the coast north of Shanhaikwan and on the Fengtien rear. Leaving Chinwangtao against the advice of his staff, he made a personal reconnaissance of landing points on the north coast, on the gunboat *Hai Chi*. He was gone a fatal two days. In his absence the Fengtien troops added to their gains, and his return barely averted a panic-stricken Chihli flight. The troops on transports were hastily disembarked at Chinwangtao and desperate efforts were slowly retrieving the positions when news came of the defection of Feng Yu-hsiang, his seizure of Peking and the enforced mandates proclaiming peace. Unconquered still, he

remained two more days in Chinwangtao, then leaving it still in good shape for defense under his trusted subordinate, Chang Fu-lai, went himself to Tientsin, toward which point he directed all reinforcements from the south, originally intended for Chinwangtao. Positions were hastily taken up at Lutai, east of Tientsin, on the railway, and at Yangtsun, north of Tientsin, on the railway. If now the Chinwangtao front could be held, Feng might be crushed by a march on Peking and victory yet achieved.

But with Wu away no Chihli plan would work. In the face of another Fengtien attack Chang Fu-lai fled. Fengtien troops coming by road through the wall at Lengkon captured Lanchow on October 28, and cut off all retreat by rail from the northern positions. Yangtsun was captured by Feng Yu-hsiang's troops on November 2, the Tuchun of Shansi, long the object of attacks by Wu, cut the Peking-Hankow line of supply from Hankow and Loyang, and the Tuchun of Shantung cut the Tientsin-Pukow line of supply from Nanking.

November 3 Wu, with a few personal followers, fled to Tangku, embarked in a Chinese transport and is gone no one knows where. Shanghai, Tsingtao, and Canton are all held against him. Leaders have fallen away from him. His cause appears hopelessly lost. Peace, of sorts, is at hand.

It is not possible that Wu was unaware of the probable disloyalty of Feng and Wang Cheng-pin. He probably relied upon one of four things to cope with such a situation:

The effect of his personality upon their wavering loyalty.

A deprecation of the harm they could do if placed in out-of-the-way positions.

The weight of Chinese traditions of loyalty to Tsao Kun and himself.

The effect of the signal victory he had hoped to win at Shanhaikwan.

Feng Yu-hsiang was evidently well informed of the situation at Shanhaikwan and struck at the right moment.

His action is variously viewed. With most of the missionaries he is held in high esteem, and one of them yesterday, in his office, compared him favorably with Abraham Lincoln. The comments of others would not bear repetition. It is not to be understood that all missionaries commend him, nor that all other foreigners condemn him. Somewhere between the warmth of the one and the bitterness of the other the truth lies. It is stupidly wrong to attempt judgment of the Chinese, whether or not converted to Christianity, by our standards, or comparison of them with our people or individuals. The most we can hope for is to not be too much surprised at what they do.

Those who condemn him say that he should have said at once that he would not fight when Wu first started preparations and before he had come to Peking. Undoubtedly this would have prevented the war, as Wu would not have dared attack him and his 30,000 troops at Peking with the Chekiang-Kiangsu conflict on and Chang mobilizing. But this not only would have preserved the peace, but the status quo as well, and this is what Feng was in the conspiracy to overthrow. Similarly, had he seized Peking while Wu was in Loyang, there would have been left the Yangtze alliance of Wu, Chi, and Haiso Yao-nan. Wu had to be lured into the trap to insure his destruction.

It is certain that Feng's action will never be forgotten or forgiven by the Chinese, no matter how much its results may inure to their benefit.

The dominant figure in the successful conclusion of the war is Chang Tso-lin. Nothing positive may be said of the plans of the victors, but I believe that roughly it is to bring about a conference, the purpose of which will be to form a loose federation of autonomous regions and Provinces. Forceful unification is dead for the moment, and perhaps forever. It is opposed to the wishes of the people, and, had it been effected, would have been of great instability.

Local autonomy is of the genius of the people. They will accept it, in all probability, with acclaim. Difficulties will arise over the appointment of governors, and the maintenance of Central power. By compromise and patience, much may be accomplished.

Tuan Chi-jui is spoken of as the new President and is expected to reach Peking shortly. The President resigned November 2, and in the interregnum the cabinet is acting in an executive capacity, as it did after the flight of Li Yuan-hung and before the election of Tsao Kun.

The leading element in the new cabinet is C. T. Wang, Minister of Foreign Affairs and concurrently Minister of Finance. His prominence in the new Government is giving rise to much speculation as to its tendencies. He has for some time past been in almost daily conference with Karakhan. In a public statement made November 7, on behalf of the new cabinet and Government, occurs the following announcement:

As Minister of Foreign Affairs, I wish to speak frankly. We shall live up to the letter and spirit of our treaty engagements. In so doing we wish to remind the friendly powers that China has a right to her own existence. Any conditions derogatory to her right to exist as a free and independent nation must by necessity be rectified by mutual arrangement as quickly as the exigency of the circumstances requires.

Certainly nothing could be clearer than the intention here revealed to secure as promptly as possible the cancellation of all treaties giving foreigners special rights, privileges, and exemptions.

When in the spring of 1924 it was thought that Chang Tso-lin was about to strike, an investigation from this office showed that he was not yet ready, and that an important matter that held his hand was the fear that if he left Mukden with his army the soviets would seize the Chinese Eastern Railway zone. That fear was still in his path until the soviet-Manchurian agreement of September 20, 1924, was signed. This immediately not only freed Chang of apprehension, but released from guard duty on the railway enough soldiers to raise two more armies with which to confront Wu Pei-fu. The inscience of the soviet government in completing this agreement with Chang Tso-lin at a time when he was a declared rebel against the Government with which they had just resumed relations, has heretofore been commented upon. That it was more than inscience becomes apparent when it is noted that Wu Pei-fu was representing in the field the Central Government in an attempt to crush Chang. It further gives considerable grounds for belief that soviet help was given the conspirators against Wu which resulted in the victory over him.

It must also be noted that Sun Yat-sen has been conducting a violent campaign against all foreigners except the soviets, and demanding the cancellation of all treaties with them that give their nationals special rights, etc.

Sun is reported to be about to attend the conference of leaders above alluded to.

I believe that while there is in immediate prospect a period of peace in China, that we are about to enter a time of extremely difficult negotiations in which we will encounter a China backed by a soviet government bent on making trouble, that will endeavor by threats and ultimations to completely rewrite all existing treaties. We will have to squarely face the question of our willingness, among other things, to abandon our treaty right of extraterritoriality.

The attitude of Japan in this situation is of intense interest and importance. I believe her to be dissatisfied with the amount of return she has received from her efforts in Manchuria and with Chang Tso-lin. She is in deadly fear of the extension to her own country of Bolshevism. There are indications that the soviet influence in the Chinese Eastern Railway will be directed against the South Manchurian Railway. The former has already canceled traffic agreements with the latter, which will result in a loss to it of \$10,000,000 (Mex.) annually. There are reasons to think she will fear her position in Manchuria, vital to her plans and future, is threatened. All Chinese, without regard to party, creed, or locality, hate all Japanese.

From the foregoing it seems reasonable to think that Japan may retain her place among the treaty powers enjoying special rights.

rather than voluntarily relinquishing them and joining hands in a movement with the soviets.

Another matter for consideration is China's immediate need for money. It is possible that she may emulate the soviets, now apparently her model, and repudiate her debts, but she still must have funds with which to carry on. The soviets can not give her these unless they borrow money from England and France for the purpose. Some of the treaty powers can, but they will not do so except for considerations of moment.

An incident, inexplicable except on the grounds of soviet suggestion and influence, occurred on the 5th, when the ex-emperor, in violation of solemn agreements on the part of the Chinese Government at the time of the revolution, was ejected from the forbidden city. The text of the new agreement entered into with him is as follows:

The Manchu emperor wishing to see the spirit of the Republic prevail in this country and not desiring a system in conflict with the existing government, it is hereby arranged that the following favorable treatment be accepted:

1. Beginning from to-day, the Manchu emperor repudiates his title of emperor and enjoys equal treatment under the law of the Chinese Republic.

2. After this revision, the National Government will make a yearly allowance of \$500,000 for the maintenance of the Ching household and allot \$2,000,000 to give work to the poor, preference being given to the poor bannermen.

3. In accordance with the third article of the original favorable-treatment agreement, the Ching household should instantly move from the forbidden city, selecting their own residence with full responsibility for their protection.

4. The ancient temples and tombs of the Ching household will be revered and open for sacrifice forever, and guarded by specially assigned troops of the National Government.

5. The property of the Ching household shall remain in its possession. However, the National Government will render it ample protection. As to public property it will be taken by the National Government.

In explanation of this act, the Far Eastern Times, soviet and Manchurian subsidized, endeavored to make it appear that there had been a plot for the restoration of the monarchy. This is as ridiculous as it is untrue.

Detailed daily account of troop movements and military and naval events is appended.

A biographical sketch of Huang-fu will be found on page 1007 and of C. T. Wang on page 1053 of the China Yearbook for 1924.

The former is pleasant and agreeable, but not possessed of sufficient strength of character or experience for the office to which he has been appointed.

C. T. Wang has a wide circle of foreign friends. He has an attractive personality, an active vigorous mind, youth, and physical fitness.

At present I believe him to be under the spell of soviet theories, and in consequence a probable source of trouble. I can not, however, believe that he will always remain under this baleful influence. Bolshevism and communism are not in accord with the spirit of the Chinese people. I should say they are as opposed to them as are the French, and for much the same reason. When Wang has sufficiently experimented and profited by this new school, and found, or been shown, his error, he will be an important leader of the better element in China.

For the moment he is enjoying a triumph over his personal rival, Wellington Koo. The latter, with his suavity, self-assurance, and catlike qualities has with his own and inimitable swagger left the stage.

It is safe to say that his absence from it will not be long.

Dr. W. W. Yen appears to have behaved with courage and discretion. He refused all requests by Feng that he call on him after his coup: complied only under duress in the issuance of mandates and steadily refused all offers of place in the new cabinet.

FRANCE

NAVAL NOTE

1924

The 1400-ton torpedo boat *Ouragan*, one of the 12 boats of this class authorized in 1922 program, was launched at Caen December 9, 1924.

GERMANY

NEW LIGHT CRUISER FOR THE GERMAN NAVY

November, 1924

[From Marine Rundschau]

The light cruiser A is the first new construction of the navy department which has been designed under the displacement restrictions of the treaty of Versailles. At a time in which other nations are building cruisers up to 8,000-10,000 tons we are limited to 6,000 tons, the size of our last light cruiser of the *Ersatz Leipzig* class. However, the new cruiser A represents a greatly improved type, owing to the utilization of the most modern technical ideas.

The 15-centimeter guns, of which there are the same number as in the former class, are installed direct amidship, so that under the improved bow and stern firing all guns can fire broadside, which was only possible for two-thirds of the guns on the previous cruisers. Double torpedo tubes are employed in place of single ones.

In place of direct drive the ship has turbines with wheel gear, which arrangement furnishes a better number of propeller revolutions and operates to greater economic advantage. This also makes it possible to divide the turbine rooms more satisfactory—that is, by means of diagonal bulkheads without a longitudinal bulkhead through the middle. The ship could not be made to burn oil exclusively as during foreign cruises; it will be largely dependent on coal. The performance of the oil-burning boilers is increased to two-thirds of the entire performance (in the *Ersatz Leipzig*, it was only one-half), and the supply of oil and coal is estimated correspondingly. This and a few other improvements in construction will undoubtedly increase the speed of the ship and also the cruising radius about 65 per cent as compared with the *Ersatz Leipzig*, that is, about 6,500 sm., which is a fact of tremendous advantage in foreign cruises.

The seaworthiness of the ship is further improved through a long inclosed forecastle, heightened conning platforms, and pilot bridge. In place of the light mast in front, there is a military mast with platforms for directing artillery fire. Only the lifeboats still hang in davits; all the others are lowered by means of two derricks, which are also useful in taking on other heavy loads. All the experiences gained during the war and afterwards in connection with the communication and ventilating systems and the fire and damage control have been made use of. Special attention was paid to comfortable quarters for the crew. The enlarging of the fore-castle and deck erections, the decreasing of the coal bunkers, and the decrease in the number of the crew owing to the better oil burning, all make it possible to provide much more room for each man. The increased demands for comfort in the living quarters, which arose after the war, were all taken into account; for instance, through enlarged clothes cupboards, better lavatory, bathing and laundry arrangements, canteen kitchens, and special reading rooms for non-commissioned officers and men.

The principal measurements are as follows:

| | | |
|--|---------------|-------|
| Length in the construction water line..... | meters .. | 150.5 |
| Maximum width | do | 14.3 |
| Construction depth..... | do | 5.3 |
| Displacement (normal)..... | tons .. | 6,000 |
| Speed | kilometers .. | 29 |

The construction of the ship was greatly delayed owing to the lack of construction personnel and the delayed delivery of great quantities of material ordered from the Ruhr. The principal parts of the main body of the ship were finished (up to the upper deck) in the slip. The boilers and turbines will be ready by the end of the year, so that it can be launched at the beginning of 1925. As the work on the inner parts of the ship is also correspondingly

advanced, both in the workshops and among the constructors, the completion of the ship can be counted on for autumn of 1925.

Note.—Later advice gives name of this cruiser as the *Emden*, the third German cruiser of this name.

GERMANY

AVIATION NOTE

November, 1924

[From the German press]

It is reported that the German Government has decided to put a stop to English aviation over German territory inasmuch as the civil department of the English Air Ministry has not been successful in persuading France to agree to the alterations in the aviation clauses of the Versailles treaty, which have been demanded by Germany. After 15 November, Germany will only permit such planes to fly over German territory as are not larger nor more powerful than the German planes which Germany is permitted to build. However, the planes which Germany is permitted to build under the terms of the peace treaty are not strong enough to insure the necessary safety in extensive cross-country flights.

The above report is somewhat premature, as the special agreement with England regarding the Berlin-London flight runs still to the end of this year. Furthermore, the negotiations which are being carried on in Paris at the present time regarding this question are not yet finished. However, we learn from competent authority that in the event that the negotiations do not turn out satisfactorily Germany has decided to make use of her prerogatives regarding international aviation over German territory and only permit such planes to fly over the country as are equal in size and strength to those which Germany is permitted to build according to the terms of the treaty of Versailles. The situation has become absolutely untenable that German aeronautical technic, which has proved its ability in the construction of the ZR-3 and motorless planes, should suffer further restrictions. Besides, Germany's absence in international aviation has already made itself felt and a continuation of the present situation will only result in damage to aviation on the whole.

GERMANY

A CRITICAL STUDY OF THE SYSTEM OF DEFENSE OF HELGOLAND BAY ON THE EVE OF AUGUST 28, 1914

[By V. Novitsky]

When studying the defense of Helgoland Bay it should be borne in mind that this bay, the famous German military triangle, was

the main base of the German high sea fleet in the struggle against Britain's supremacy on sea. A study of the organization of its defenses should therefore be taken up with corresponding earnestness. Considering the time and place as well as the means which the German command had at its disposition, we would expect to find here a masterpiece of defense organization. It was not an occasion where haste and improvisation could be expected with the defects usually produced by them. We should have expected to find in this case the quintessence of efficient organization worked out by Germany's first-class naval authorities.

The battle of August 28, 1914, proved the organization of the defense of Helgoland Bay to be deficient. It proved deficient to such an extent that M. A. Petroff, when offering the problem for study, put it in words as follows: "Find out in the defense of Helgoland; the reasons that led to the German defeat on August 28." He thus intimates that the defects of the organization were serious enough to be regarded as the cause of the German defeat.

Assuming that the system of defense is familiar to the reader, we venture to pass at once to the critical study of separate points, which seems to be the preferable form.

(1) During the period of strained political relations up to August 28 we see that a series of changes were introduced into the system of defense of Helgoland. These changes were not of a thought-out, systematic character, but were prompted by various emergencies which could in part be foreseen. For instance, the fatigue of the crews of the light forces induced a change in the defense (August 6) as regards submarine service. The necessity of detaching one flotilla for the purpose of scouting in the German Bay on August 7 caused the inner guard line of torpedo boats (a rather casual measure in itself) to be canceled. The following may serve as an illustration: The attack upon P-III that was carried out on August 25 seaward of Helgoland but within the guarded line was followed by a reinforcement of the latter; the appearance of an enemy destroyer near Texel prompted a reinforcement of the defense of Ems. Such changes led to the conclusion that (a) the system of defense of Helgoland had not been sufficiently worked out in times of peace, and (b) that the system of defense was therefore being improvised after the beginning of the war.

(2) The lack of forethought in the system of defense made itself felt in the absence of a definitely settled plan of action. The "Basis of defense of the German Bight" is a characteristic document in this respect. We find there the following instructions: "2. The purpose of day patrols is to guard the German Bight first from submarines, and second, from mine layers. 3. Instructions to day patrols: Torpedo boats should not engage a fight with de-

stroyers, but should endeavor to draw the enemy's light craft upon submarines. Submarines should attack light cruisers and destroyers, provided they are certain of success. Patrol boats should report upon sighting the enemy, especially enemy submarines. Should enemy destroyers or cruisers appear, the patrol boats are to retreat to Helgoland into the river mouths."

The foregoing quotations show that the instructions issued to the patrol boats did not correspond to the purpose dictated by the circumstances: the fact that the purpose only mentions submarines and mine layers, whereas the instructions relate to destroyers, light cruisers, and enemy light craft generally, shows that the purpose was incomplete and represented nothing but a part of the duties naturally falling to day patrols. Incompleteness of purpose is a serious defect, the importance of which is measured by the relative importance of the omissions on the one side and the instructions given on the other. If we examine the purpose set to the day patrols from this point of view, we must admit that it was a very limited one and that it was largely influenced "by hypnotic self-suggestion of danger from submarines." That self-suggestion was so considerable that the entire problem of the defense of Helgoland seemingly centered upon the security of the fleet from submarines while lying in ports and especially during its deployment. Everything else seems to have been forgotten, even the essential problem of defense, to insure a safe and timely deployment of the fleet in case of the appearance of the enemy's main forces. The problem that would have suggested itself, had the defense of the bay been thoughtfully worked out, was overlooked, namely, to insure a quiet anchorage to the fleet, to preserve the crews from overexertion, and to prevent the enemy from getting on the nerves of the commanders and staffs by operations of secondary importance. No attention was given to the principle that the main forces should remain perfectly quiet under protection of the outer guard until the moment when there finally appears a foe deserving of their attention, and that they should be sure of being able to safely and rapidly deploy at the necessary moment, their command having all the information needed to engage in the battle. Did the protecting forces of the German Bay strive to answer this problem in its widest conception? We must answer in the negative. They were only concerned with a limited purpose and centered their attention upon it, neglecting their function of general defense of the bay to become merely a sort of "antisubmarine guard of Helgoland." The question as to whether they were actually capable of solving the greater problem, being organized as they were, must also be answered in the negative. In order to better understand the question, let us examine it more closely in view of its greater importance.

(3) Let us first see whether the system was properly organized in regard to the available means. It could generally be expected that the German Bight would be provided with adequate means of defense, that the equipment in patrol ships would be fully up to the requirements of the service and that the fleet would only be drawn upon for that purpose in the smallest possible measure. In reality we see something quite different.

(a) "In fear of being blocked up by submarines and mine fields in the river mouths and having no adequate number of proper patrol ships, the torpedo boats and light cruisers were wearing out their mechanisms on patrol duties, so that there did not remain any adequate forces either to attack or to repel the enemy." This is the historian's statement, with which we thoroughly agree.

(b) "On August 12, there were 14 fishing boats ready for patrol duty in the mouths of rivers. A week later the standing guard of the river mouths was entirely confined to fishing steamers." The terms mentioned point to improvised work. The general good outfit of the German Bight ports in peace time and their ample provision of material make it hard to admit that the above work could have taken weeks to accomplish if it had been well thought out in advance.

(c) Ships without wireless outfit were used for patrol duty, whereas the mere presence of single ships without radio is undesirable and sometimes dangerous, as was shown in the battle of August 28.

(4) We think, however, that the most serious defects are to be found in the manner in which the available resources were made use of by the command.

(a) While admitting the possibility of a raid upon the bay, as it did actually happen, the German command's plan for repelling such a raid did not aim at the destruction of the squadron that would risk such an adventure by bringing into action the overwhelming forces of the German fleet, but rather at repelling it and forcing it to retreat.

(b) As a matter of fact, the operation was based upon the combined action of torpedo boats and submarines by using the former to draw the enemy upon the latter. The submarines were at that time an untested weapon; a decisive success and the destruction of the enemy could hardly have been expected from them.

(c) Even in the case of partial success there were no forces available to make it complete. That important question had not been foreseen.

(d) There being no plan to destroy the enemy's light forces with surface craft—the whole operation being based upon the action

of submarines and mining ships—we see that the command had not considered two essential ideas:

(1) To mass the forces designed for the first blow, and (2) to provide for a decisive blow, calculated to solve the problem in the only possible radical way, by destroying the enemy force that had risked to enter the bay.

These two leading ideas being absent, we get the impression that the German command only thought of driving away instead of destroying the enemy's squadron, which is both an error and an inconsistency. As a matter of fact, when carrying out active operations near the enemy's shores the German command endeavored, by means of their mining and submarine fleet, to inflict losses upon the enemy and to weaken him. This action was dictated by the general strategic situation and answered to the existing means and armament. But the situation in the German Bight was quite different. The German line fleet that could not be used near the enemy's shores without running great risk could have been used here with considerable chances of success. The mining fleet, which was the only weapon that could possibly be used near the British coast, was used merely as a weapon of secondary importance, whose chief purpose was to safeguard the use of line ships. Given the impossibility of using the line fleet near the coast of England, there remained the only chance of weakening the enemy in the German Bay, where circumstances were favorable and even the main forces could be used to destroy all the enemy forces that appeared in the bay. This is the only way in which the defense of the German Bight should have been organized, in which case the latter would have been the graveyard of the enemy ships instead of that of the German Navy.

The means were available but were wrongly used.

The means were available but they were put to an incommensurate task.

The task itself did not answer to the general situation.

Such is our opinion.

We venture to add one more remark in connection with the question treated. The Germans were under the hypnotic suggestion of fear of submarines, and used submarines for patrol duty. We think that the question was quite wrongly treated by the German command. Submarines can be used for patrol and scout duty off the enemy's coasts no nearer than a few score miles from the main base of the fleet. We consider the use of submarines for the defense of the German Bight as quite unjustified. We think that the famous words of a true admiral-soldier, spoken at the time when the torpedo-boat panic was abroad, should not have been forgotten: "If I see approaching torpedo boats, I will first blow them up and then

see whose they are—ours or the enemy's." We think that every commander, informed of the presence of a submarine in the German Bight, provided it was sailing on the surface and without escort, should have first blown it up.

In any case a guard composed of torpedo boats with escorts is nonsense. Therefore, submarines should not be used for patrol duty.

GREAT BRITAIN

FIRE CONTROL—H. M. S. "HOOD"

December, 1924

The following list of fire-control instruments mounted aloft in H. M. S. *Hood* is believed to be correct:

15-inch spotting top:

Barr & Stroud's fall of shot receivers, three in number (1 from X turret; 1 from 15-inch gun-control tower; 1 from A turret).

Barr & Stroud's fall of shot transmitter (to transmitting station and 15-inch gun-control tower).

Osborne's fall of shot indicator. Alarm rattlers for fall of shot indicator, two in number.

Barr & Stroud's single range receivers, three in number (1 from W/T cabinet, 1 from Dreyer table in transmitting station, 1 from transmitting station for concentration of fire).

Barr & Stroud single range transmitter for concentration of fire, to receiver in transmitting station.

Wind direction receiver; wind speed receiver (from anemometer):

Forbes speed log receiver (for speed of ship). Deflection transmitter on deflection calculator transmitting to transmitting station.

Barr & Stroud's rate receiver for transmitting station.

Barr & Stroud's rate transmitter to transmitting station.

Barr & Stroud's bearing transmitter to transmitting station.

Captain's bell (cease fire gong).

Vicker's "follow the pointer" range repeat receiver from transmitting station off turret circuits.

Vicker's "follow the pointer" deflection repeat receiver.

Vicker's "follow the pointer" range transmitter.

Vicker's "follow the pointer" deflection transmitter gyro compass receiver.

Gun ready lamp box:

Graham's result of plot.

Evershed's duplex bearing indicator.

Evershed's open-faced indicator.

Evershed's bearing transmitter. Dumaresq.

Aid to spotter:

Transmitter for visual range dials for concentration of fire.

Navyphones, three in number, to exchange board in transmitting station.

Navyphone direct to W/T cabinet.

Voice pipes to 15-inch spotting top:

From 15-inch transmitting station. (Two separate leads fitted.)

From 15-inch gun-control tower.

From 15-inch gun-control tower with branch from revolving hood over 15-inch gun-control tower.

From 15-inch gun-director tower aloft.

From conning tower, with branch from fore bridge.

From 15-inch transmitting station, with branch from W/T cabinet.

From 5.5-inch spotting top (port).

From 5.5-inch spotting top (starboard).

15-inch gun-director tower aloft:

Barr & Stroud's range transmitter for auto transmission of ranges (supplied with range finder).

Vicker's range receiver: Vicker's deflection receiver (follow the pointer instruments from transmitting station).

Captain's bell (cease-fire gong).

Gun ready lamp box.

Navy phones, two in number to exchange board in transmitting station.

Voice pipes to 15-inch gun-director tower aloft:

From 15-inch spotting top.

From 15-inch gun-control tower. (Two separate leads fitted.)

From fore bridge.

From trainer's position to range-finder operator.

15-foot range finder.

15-inch gun director.

Evershed's duplex training director.

GREAT BRITAIN

MAMMOTH AIRSHIPS

December, 1924

Announcement was made by the Air Ministry on November 19 that Britain was to construct the largest airship yet undertaken. The announcement was made by Sir Samuel Hoare, M. P., the Secretary of State for Air, previous to the departure of Air Vice Marshal Sir Sefton Brancker, director of civil aviation, by airplane to India in order to survey the possibilities of a route via Germany, Poland, Rumania, Turkey, Syria, and Mesopotamia, and to confer with the Indian Government regarding the establishment of the airship port in that country.

The press announces that Cardington, a small village 3 miles from Bedford, is destined to be the largest air port in the world in the space of a few years. It is said that in addition to being the Empire air-mail port, passenger services will be established from there to Egypt, India, Australia, South Africa, Canada, and the United States.

This announcement has been extremely well received, as for some time there has been considerable agitation in the press about the

condition of the air service and the attempt of the authorities to withhold information regarding fatalities. One newspaper reports that there have been at least 75 fatal accidents, none of which were announced until after notices had appeared in the press.

The plans for the R-101, as the new ship is to be called, embrace the enlargement of the present shed at Cardington from 700 feet to 812 feet in length and 110 feet to 175 feet in height, and to 254 feet in width—with a floor space of $4\frac{3}{4}$ acres. A contract has already been given for this work by the Government.

It is expected that work on the airship itself will not begin until next July. It is to be completed in 1926 and at present is supposed to sail for India in 1927 on her first voyage. The ship after completion will not be housed at the end of each trip but anchored to a mooring mast which is to be 180 feet high, and will only be housed for repairs. Masts will be erected in Egypt and India—there will also be a terminal repair shed in India. These masts will be provided with elevators, winches, pumps, and pipe lines for oil, water, and gas.

The following table affords comparison between the ZR-3 and the R-101 in a very general way.

| | | ZR-3 | R-101 |
|----------------------------|----------------|-----------|-----------|
| Length | feet | 656 | 720 |
| Height | do | | 130 |
| Diameter | do. | 91 | 130 |
| Number of motors | | 5 | 7 |
| Horsepower per motor | | 400 | 600 |
| Total horsepower | | 2,000 | 4,200 |
| Speed | miles per hour | 76 | 70 |
| Cubic capacity | cubic feet | 2,472,000 | 5,000,000 |
| Lifting capacity | tons | 46 | 155 |

The ship's frame is to be constructed of stainless steel, supplied by Messrs. Vicker's & Co. The propellers will also be of steel and the fabric made of a material capable of withstanding tropical heat. The engines will burn fuel oil and at full speed consume about 1,750 pounds per hour. The gross lift of the ship will be 153 tons, of which it is said that 75 tons will be available for fuel, water, ballast, goods, and passengers. It is estimated that on a run of 2,500 miles 20 tons would be available for passengers and goods.

When used for commercial purposes, accommodations will be available for 100 passengers in two-berth cabins.

A sister ship, the R-100, is to be constructed by Messrs. Vicker's, at Howden, in Yorkshire, according to the press, but no information is available concerning it.

Experimental flights in the R-33 and R-34 are to be carried out next year in order to make the necessary research observations in

connection with the operation of the new ship. The following details give an idea of some of the tests to be made.

The R-33 has been fitted up with over 200 special orifices, and the pressures which occur on these orifices during different maneuvers will be recorded simultaneously by electrical means on special manometers fitted in the ship for this purpose. The results obtained will be compared with the figures on the model tests, and any discrepancy will be taken account of in designing R-101 from its model data. When an airship maneuvers it swings a considerable mass of air with it (this may be as much as 60 tons in the case of the R-101), and this mass of air exerts reactive forces on the airship. In order to obtain some estimate as to the magnitude of this effect, R-33 has been fitted with a special moving pointer, which is followed by the helmsman in order to impose a prescribed motion on the rudders. The resulting motion of the ship in space is obtained by simultaneously photographing with a kinema camera a number of instruments fitted in the control car, and this again is checked by flying the ship over a camera obscura on the ground, on the table of which its motion is recorded. From the motion of the airship it is possible to estimate the effect of the mass of air which is moved with it.

As a result of a recommendation by the committee which inquired into the loss of the R-38, a special panel of experts was set up to lay down a satisfactory basis for the stressing of airships. This was carried out in 1922, and it is now necessary to test by experimental means the validity of their conclusions. Experiments are in hand for this purpose. Cardiff University is testing the stresses set up in the members of a 6-foot model of an airship hull when loaded in various ways, and a special contrivance has been devised at Cardington to be attached to either the girders or the wires of an airship, which can be made to record the stresses occurring in these members.

GREAT BRITAIN

MISCELLANEOUS NOTES

December, 1924

Mine layers

Orders have been given for monitor 29, which has been in dockyard hands at Pembroke for some months past undergoing conversion into a mine layer, to be ready for service on 18 December, when she is to be inspected for passing out of dockyard control.

The monitor, which has been selected for instructional duties on the Mediterranean station, is to begin her mine-laying equipment tests to-day. On arrival at Malta she will be commissioned with a crew from the Nore naval depot as tender to the *Egmont*.

Machine guns—Ordnance

During a recent visit to the Vickers & Co. experimental and research plant at Depthford there was exhibited the results of experimental work which had just been completed in connection with the Vickers machine gun, caliber .303, by means of which the fixed machine gun, the observer's gun, and the standard army-type machine gun were all made interchangeable, the parts being so redesigned as to permit rapid change from drum to belt feed, and vice versa, in a very few minutes, the great military advantage claimed for this improvement being that spare parts for machine guns may be obtained from any ordnance depot, army, navy, or air force, and that in case of damage to a plane and the necessity of replacing, say the pilot's gun, when there is no spare available, it can quickly and easily be accomplished by utilizing one of the spare observer's guns or by borrowing a light machine gun from the land forces. The necessary conversions were made in my presence and the guns were fired. In addition, they were fired with special blank ammunition, the cartridges of which had been fitted with light wooden plugs, coated with paraffin, and gauged carefully to correspond with service ammunition. These blank rounds were fired and the light wooden bullets did not reach a box situated at about 20 feet from the muzzle of the gun, showing that it was perfectly safe to use this type of ammunition in testing out the guns in an airdrome or over an aviation landing field where live ammunition could not be used.

The company stated that these developments had just been completed at the request of the Government and would be submitted to a committee of advisers in the near future.

Kite balloons.

The admiralty recently purchased a small number of 70,000 cubic-foot kite balloons and are using those balloons on fast vessels for the purpose of towing some form of aerial target for ships' anti-aircraft practice.

Recent accidents with "grebe" type single-seater fighter.

Fighting squadron No. 25 has been equipped with Gloucester "grebe" single-seater fighters. There have been two serious accidents recently in that squadron, and it appears to be common knowl-

edge in aviation circles that both of these accidents were caused by structural failures while in flight, the failure in each case being a collapse of lower longeron when pulling out of a dive. One well-known civilian aircraft expert attributes these longeron failures to the fact that the designer of the "grebe" did not take into sufficient consideration the necessity for strengthening up the fuselage upon the adoption of the comparatively thick wing section now used on the "grebe."

It is understood that all "grebes" have been withdrawn from active service pending the outcome of the investigations of the last accident.

ITALY

ESTIMATE OF THE STRATEGIC SITUATION OF ITALY

October, 1924

[Prepared by a committee at the Army War College]

I. *Geographic situation*

a. Military aspects of geographic situation.—The primary feature evident with reference to the geographic position of Italy is her isolation due to her long coast line and her ruggedly mountainous land frontier. This is of military significance because Italy is not self-supporting in raw materials, fuel, or foodstuffs. She is compelled either by her own efforts or by alliance with a strong naval power to maintain the sea routes to her ports.

The present line of her land frontier gives Italy a strong defensive boundary, particularly on the north and northeast. The Trentine contributes chiefly to this, blocking access from the north and flanking access from the east. Italy's most probable theater of trouble is with her neighbors across the Adriatic. With the acquirement of Fiume, Italy has apparently abandoned aggression along the Dalmatian coast, though she may be counted on to oppose any maritime or naval development by Yugoslavia that might threaten her dominance in the Adriatic.

With relation to international air routes, to trade routes, and to routes of international lines of signal communication in the Mediterranean, Italy has a very strategic position, making her an ally to be sought by any nation interested either in the maintenance or in the interruption of these routes. At present the paramount interest of England in the Mediterranean trade routes indicates the nation most interested in the attitude of Italy; any nation at war with France would desire alliance with Italy because of the threat against lines of communication to the French colonies. France would desire at least the neutrality of Italy.

As is to be expected, Italy's long sea frontier has stimulated the building of an extensive merchant marine and of a relatively large navy. Italy need fear no invasion of this frontier by any considerable force. The defeat of her navy and air force would be necessary precedents to any such invasion. With her fleet and air force defeated, she could be starved into submission by blockade.

b. Military aspects of the physical geography.—The Alps, by their ruggedness and by the precipitate nature of the valleys, form a particularly difficult military obstacle. South of the Alps lies the broad fertile valley of the Po. This is the industrial and agricultural heart of Italy. It is the most probable objective of any enemy invasion.

The Appennines run the full length of the peninsular part of Italy. They form no special military asset or liability. They determine the nature of the coast line, steep and unbroken on the east: more open on the west and broken by many good harbors. These are the basis of Italy's maritime development and give her predominance (under England) in local waters.

Malaria in southern Italy and in the lower Po Valley would affect any prolonged military operations in those areas.

II. Political situation

Ethnological.—Italy's population is made up of many distinct racial components having conflicting philosophies, utterly dissimilar languages, and physical characteristics. The alien peoples included within Italian boundaries number less than 1,000,000, however, and comprise Croats, Slovenes, Slavs, Dalmatians, Germans, Albanians, Ladins, and Greeks. The 230,000 Germans consolidated in the newly acquired Tyrol present the only distinct element of potential racial conflict.

The Italians themselves may be roughly divided into two types—the Alpine type north of the Tiber and the Mediterranean type south of the Tiber.

The northern Italians are physically larger than those in the south. They are the most blond and are physically superior to their Mediterranean compatriots. This type of Italian is more war-loving, more progressive, more constructive, and more aggressive than the southern Italians.

The southern Italian, as indicated in the preceding paragraph, are small of stature, swarthy, and generally more inert than their northern brothers.

Psychological.—Ignorance prevails among Italians to a greater extent than in any other important European nation. This is not because the Italian is unintelligent, but because the educational system is very faulty and because of the further fact that 67 per cent

of the population is engaged in agriculture and forestry and has not sensed the need of education and striven to obtain what schooling is available such as it is.

Various section of the Italian population itself have dialects and forms of idiomatic speech so dissimilar to the speech of others that the Italian of one locality is unable to understand Italians from another.

The Italian of to-day continues to exult in the glory that was Rome and has acquired a national egotism that has brought the belief to him that the destiny of the nation is to regain this glory with compound interest. This has created a national feeling that is essentially a fantastic and flamboyant patriotism. Under the inspiration of leaders affected with this feeling to unlimited degree, the Italian state of mind is such that hordes could be accumulated bent upon the accomplishment of weird national programs.

The Italian is innately suspicious and distrustful of all other people. In consequence he is not characterized by willing and cheerful obedience to social, political, or military superiors.

Because of differences in dialects and idiomatic speech and because of the ignorance of so great a portion of the population, it would be difficult to propagandize Italians.

Lack of racial solidarity and units of language, the habit of questioning authority, physical inferiority, ignorance, and primitiveness, all combined, are reasons why an Italian army would never be a first-class, efficient war machine.

Government.—The Italian Government is a constitutional monarchy, its constitution dating back only to 1848. The King is the executive authority, but he exercises this function through responsible ministers of the cabinet. The legislative authority rests with the Parliament, which consists of the Senate and the Chamber of Deputies. The judicial system is similar to that of France. The King appoints officers, issues ordinances and decrees, dissolves the Chamber of Deputies, and has other prescribed duties, but no act of his is valid unless countersigned by a minister.

The Senate consists of princes of the royal line and senators appointed by the King for life and possessing qualifications prescribed by law.

Deputies are elected to serve five-year terms, the popular elections being held throughout the country.

All males over 21 years of age who can read and write are qualified electors. The qualified electors are 35 per cent of Italy's adult male population.

Local government is conducted in 69 Provinces, 214 districts, and 8,277 communes, having officials appointed by the Crown or local authorities and by elective officials and bodies.

Political parties.—With a population of about 40,000,000, 67 per cent is engaged in agriculture and forestry, and this portion of the people is not interested or active in politics. The remaining 33 per cent active politically are represented in the army and navy, public office holders, industrialists, school-teachers, and clergy, and those engaged in commerce in various ways.

Thirteen political parties were represented in the Chamber of Deputies at the last elections, representing many shades of political opinion and many conflicting political philosophies. These parties grouped represented the following strength on questions of fundamental Government policy. Constitutionalists, 275; Socialists, 122; Catholics, 107; Communists, Republicans, Germans, and Slavs—a mere handful of votes each.

The Vatican adheres to the principle of control by the church over temporal affairs, but it is not politically active since the conciliatory attitude of the Fascisti.

Stability of Government.—In common with the governments of other European countries, any serious conflict between the chamber and the cabinet is liable to cause upheaval. Thus there exists the likelihood of the governments changing in the midst of war or grave emergency. The stability of the Italian Government is entirely dependent upon the leadership and statesmanship of the Premier in the office at the time.

The various political groups are not so irreconcilably opposed to each other but that in time of war or other grave emergency they could fuse and give united support to the Government. Such minorities as are so irreconcilably opposed to each other as to make such fusion possible would be held in leash by the Government, at least during the emergency.

To-day the political situation of Italy is dominated by Premier Mussolini, the political genius who created the Fascisti. His rule is that of an unchallenged and absolute dictator, disregarding the constitution as expediency dictates.

He defines his party as “a movement of the spiritual forces of Italy to awaken in Italians the full sense of their own greatness and destiny as a nation. And it proposes at any cost, even at the cost of democratic conventions, to crush any tendency that may threaten to drag the Italian people into the morass of Socialism, Bolshevism, or Internationalism.”

Since 1918 Italy has had six Premiers and their tenure in office was marked by so much dissatisfaction on the part of the people that general uprisings occurred in 1922 that threatened to sweep the country with anarchy. Just when the old politicians were demanding that the King call Giolitti back to form a new cabinet, the Fascisti executed the dramatic coup that swept Mussolini into

power. His Black Shirts swept into Rome and their demonstration of power brought the King face to face with the alternative of losing his throne or appointing Mussolini as Premier. He did the latter, of course, and in forming his government Mussolini selected an able cabinet that would assure the carrying out of the program of the Fascisti.

The Government has accomplished much in obtaining efficiency in government, reduction of public expense, and the conciliation of foreign and domestic differences. Mussolini has evoked incredible loyalty and in Europe to-day is without doubt the outstanding political figure.

Mussolini and his policies are opposed, of course. Organized and unorganized opposition is strong, but so far has not developed sufficient strength to come within striking distance of success. Violent deaths of political leaders are of frequent occurrence. One of Mussolini's policies is that of strict censorship of the press. There is a loud outcry against this, and it is perhaps one of the most puzzling questions with which the Government has to deal. It is essential to carrying out the Fascisti program and yet the people are becoming increasingly restive under the restraint.

Foreign relations—Italy was wholly dissatisfied with her territorial gains as the result of the war. She still wants increased foothold on the Adriatic. She wants African colonies. She wants commanding strong points in the eastern Mediterranean. These aims bring her into conflict with England, France, Yugoslavia, and Greece, with all of whom, however, she is on officially friendly terms. She is logically friendly toward Germany and Turkey, as well as Austria, Hungary, and Spain. Though friendly with Poland, Rumania, and Bulgaria, their increasing attachment to France is souring this friendship. Italy and the United States have a historical friendship, which Italy considers it to her great advantage to promote.

If the United States were at war with Red, Red-Orange, or Green, in all probability Italy would remain neutral.

Italy, because of her external and internal conditions, chiefly economic, will endeavor by every means to remain at peace. The Government has given assurance that it will abide by the letter and the spirit of every treaty Italy has ratified.

III. *Economic situation*

General.—Italy with her long coast lines should be a great economic nation, yet, comparatively speaking, she is poor. This is due to the lack of natural resources, the mountainous character of the soil, and the failure of her colonial system.

The climate is not very favorable to agriculture on account of frequent droughts. The varying character of the soil makes figures of yield per acre unreliable.

Italy is very densely populated: thus one of Italy's great economic problems of to-day is to utilize advantageously her rapidly increasing man power.

Steady progress has been made along permanent lines in the economic situation, as evidenced by the installation of hydro-electric stations, the improvements of the railroads, and the increasing demand for raw material. One of the most striking signs of industrial improvement is the lessening of labor disputes. On April 30, 1924, there were only 177,000 unemployed men in Italy.

Food.—About one-half of the population engage in agricultural pursuits. The acreage now under cultivation equals the pre-war level. Cereals predominate in acreage and production. The wheat crop for 1923 was 250,000,000 bushels. This immense crop was not sufficient for the needs of the country and it was necessary to import 54,000,000 bushels, but this was only half that required in the two previous years.

Corn and the sugar beets are now being extensively cultivated but the yield is not yet sufficient to meet the demand.

Coffee, meat, and some other foodstuffs must be imported. In all, during peace times Italy must import from 12 to 15 per cent of her food products.

The sources from which she obtains her food supplies are the United States, Argentina, Australia, Rumania, Brazil, and France.

Industries and munitioning capacity.—Italy, because of her lack of coal and petroleum, will never be great in industries. She is also lacking in iron and steel. Many other minerals must also be imported, such as copper, lead, zinc, tin, nickel, manganese, etc. Much raw material must be imported, such as cotton, wool, rubber, petroleum, timber, etc.

The substitution of electric power for coal has given quite an impulse to industry, but in many of the lines of industry its use is still experimental, and whether or not it will supplant the coal power can not be stated at present.

The textile industry is the most highly developed.

The establishment of a board of experts to control industrial organization essential to war is a great step forward and insures that the factories established during the past war will be kept in efficient condition.

In munition factories Italy has ample facilities to supply her own army with weapons and ammunition, provided raw materials can be obtained.

Foreign commerce.—Italy stands fifth among the nations of the world in merchant marine. She has 1,360,000 tons gross more than she had in 1914. Her marine is sufficient to care for her trade, supplies, and emigrant traffic in peace. In war it is sufficient to transport her troops, equipment, and to keep her supplied with raw materials.

The imports exceed the exports, but the difference between them is growing less each year. Money sent by emigrants and the tourist trade do much to offset the unfavorable balance between the two.

Finance.—The finances of Italy have improved greatly during the year 1923–24. The deficit at the end of the year was the smallest since the end of the war and it is believed that the budget will soon be balanced.

A reduction in the railroad deficit and the use of water to generate electric power represent a saving of some five billion lire in the trade balance.

The internal debt has been reduced, but the external debt owing to accruals of unpaid interest has increased. No policy with regard to foreign obligations has been announced.

The fact that the lira has been stable while the franc continues to decline is indicative of a sound financial condition.

Communications—Railways.—With two lines down the peninsula, cross-connected at important centers and tied into the Genoa-Trieste line at Milan, Italy has a railway system suited to meet her defensive needs. The east and west line has been completed as an effective system by construction of necessary spurs and diversions. One weakness of the Italian lines is the necessity for numerous tunnels and viaducts, making bombing and sabotage readily effective. The financial condition of the railways is a drain on the national treasury and the physical condition of the equipment is poor. Arrangements are now being contemplated turning over the railroads to private companies for operation and maintenance.

Lines of signal communication.—The telephone and telegraph systems are not in good condition, though efforts are being made to improve both. The telephone lines (acquired by the Government in 1907) are now to be turned over to private operation under Government supervision. There are local cables and within a short time Italy will have a direct line to the United States via Malaga, Spain. Efficient radio service connects Italy with the capitals of Europe and with her colonies.

CONCLUSIONS

With regard to food.—Italy can not produce sufficient food in time of peace to make herself independent, but must import about 15 per cent of foodstuffs. In war this deficiency would be increased

to about 40 per cent. It is therefore apparent that it is vital to Italy, in case of war, that her frontiers and seaports be kept open. It is also apparent that no aid could be given to an ally in the way of food.

With regard to industries and munitions.—With improvements in machinery, in power, and her experience in industrial mobilization, Italy can care for her country's needs and give aid to an ally if fuel and raw materials can be obtained. Hence as in paragraph above (with regard to food) it is vital that her frontiers and seaports be kept open.

With regard to foreign commerce.—Italy has shipping resources to care for all her needs in peace and war, but must rely on an ally with a strong navy to keep open her ports and guard the sea line of communications.

With regard to finance.—Italy's financial condition is rapidly improving, but she is not now and will not be for some time to come able to finance a war. A definite policy with regard to external obligations must be announced before foreign aid to any extent can be obtained.

With regard to communications.—While the Italian railways, railway equipment, lines of signal communications are not efficient or adequate as measured by the standards of other first-class powers, they are in better shape than they were during the war period, when they sufficed for the mobilization, concentration, transfer, supply, and administration of her army. It is fair to assume, therefore, that they would suffice in any war in which she might be involved.

GENERAL

Italy would be an asset to a foreign nation as an ally on account of her man power and her strategic geographic position on international lines of communication. The ally however must have a strong navy in order to keep open the Italian ports and guard the line of communication.

IV. *Military situation*

General.—When the Fascisti assumed control of the Government under the premiership of Mussolini in October, 1922, a reorganization of the military system was undertaken. General Diaz, the commander of the army at the close of the war, was made Minister of War, and Admiral di Renel, Minister of Marine. An air force separate from the army and navy was formed under a high commissioner.

Italy has about forty million inhabitants and by acquiring territory as a result of the war has secured strong mountain frontiers. Her land neighbors are France, Switzerland, Austria, and Yugo-

slavia. These mountain frontiers are serious military obstacles, and they have been further strengthened by fortifying the passes, while the valley of the Po is dotted with fortifications and the sea coast is well defended.

War system.—The declaration of war rests with the King, while the Premier with the approval of King and cabinet, orders mobilization. The supreme mixed commission of national defense raises and supports armies. It is presided over by the Premier. The army council consists of the inspector general, the four generals designated to command armies, three corps commanders and the chief of staff.

The army.—The army consists of the general staff and the usual branches of the combat, supply, and administrative services. The general staff proper, consists of general officers. Selected officers are, however, detailed on general staff duty, numbering 426 in all, 100 of whom are on the war department general staff.

There are 10 territorial army corps, divided into 30 infantry and 2 cavalry divisions. An army corps consists of three divisions, one regiment of Bersaghiere (or light infantry), one regiment of cavalry, one regiment of medium artillery, and two battalions of engineers.

The infantry division, about 13,000 strong, has two brigades and one regiment of field artillery. Each infantry regiment has three battalions, each of which has one machine gun and three rifle companies. They are equipped with Fiat machine guns and a 6.5-millimeter rifle.

The artillery consists of light, medium, heavy, coast, mountain, and antiaircraft. The ordnance department is a part of this branch.

Division artillery has four groups or battalions, two equipped with 75-millimeter guns, one with 105 or other light howitzers, one with 65 millimeter pack howitzers for use as accompanying guns to the infantry. Each battalion has three batteries. The corps regiments are all motorized and consist of five battalions armed with medium guns or howitzers.

The cavalry division consists of two regiments of two squadrons and a battalion of horse artillery. The cavalry has a 6.5 millimeter carbine, sabers, and in some instances lances.

The engineers perform both sapper and communication duties, and have a large variety of functions. The chemical warfare service, formerly a part of their activities, is now a separate department.

The Carabinieri are a constabulary, 60,000 in number, selected from the army and voluntarily enlisting. They served as troops during the war, but with no special distinction. As police they rank high in efficiency.

Foreign garrisons.—On foreign service in the African colonies there are 40,000 troops, 12,000 of whom are Italians, the remainder

natives, all voluntarily enlisting for three years. The officers are Italians.

General system.—Italy, like nearly all European powers, has a system of universal compulsory service. Each young man is in the army for 20 years, commencing at the age of 19. The term in the active army is 18 months; the men being divided into three categories, all not on active service being considered either as on permanent leave or with the territorial militia. This forms a reserve for war service. The active army has a minimum strength of 180,000 and a maximum of 350,000. The average is 230,000.

Officers.—The officers come from two military academies, one for artillery and engineers at Turin, one for infantry and cavalry at Modena. There are special schools of application for each branch. The School of War at Turin is a school for training officers for high command and general staff duty. About 80 selected majors, captains, and lieutenants attend annually.

As a result of the war many former reserve officers are now in the active army.

The cavalry officers come from the wealthier classes and the old Roman nobility; the engineers and artillery are the best educated; the artillery is considered the most desirable branch of the service, most of the higher commanders and general staff officers come from its ranks. The infantry gets the left-overs.

There is a compulsory system of retirement by grade, ranging from lieutenants who retire at the age of 48 to corps commanders retiring at 68.

Mobilization.—Italy's plan of mobilization in a great war would be to hold the mountain passes with the Alpini and Carabinieri, and by expansion of divisions already in the service to increase the army to the extent that her man power and resources permit. The man power is greater than the financial ability, for, while theoretically over five million could be mobilized, actually the number that was maintained during the war, two million may be considered as a fair estimate of a future performance.

Training.—Lack of funds has prevented maneuvers of organizations larger than brigades. Recently athletics have been given attention. The training in the artillery is the most efficient; in the infantry least so.

Discipline and morale.—The outward marks of discipline are lacking in the soldiers; their appearance is not up to standard and illiteracy is very common. In those branches where recruits are selected the morale is good; in the infantry it is comparatively poor.

Munitions.—As a result of war manufacture and captures, Italy has reserves of guns and ammunition. No new supplies are being

provided and war-time stocks are deteriorating, but the plant exists to manufacture sufficient for war-time purposes.

National security militia.—The Fascisti party had within its organization a militia to enforce its measures. This has become the national security militia and has charge of the enforcement of law, a former function of the army, and the earlier stages of mobilization. Its members, in event of mobilization ultimately go to regular army units. Titles of commands and commanders follow those of the ancient Roman army.

Aviation.—The aviation service is under a high commissioner and is divided into military (including naval), civil, and technical aviation. There are 12,000 officers and men, of whom 2,000 belong to the royal air force.

Officers are transferred on application from the army and navy and the forces necessary are detached for service with these branches as required.

At the end of 1924 there are to be 1,000 planes in service, divided into 70 squadrons.

Italy has the plant to manufacture sufficient planes for war service, and the present plan is to have 4,500 planes divided into three lines of 1,500 each.

The Navy.—The treaty of Washington allowed Italy the same capital ship strength as France, but the tonnage is actually less than the 175,000 displacement allowed. Italy's dependence on foreign sources for supply has caused her to specialize in light cruisers, destroyers, and submarines.

At the end of 1923, Italy had 5 dreadnoughts, 2 predreadnoughts, 3 armored cruisers, 18 light cruisers, 58 destroyers, 62 torpedo boats, and 44 submarines. The older vessels are to be sold or scrapped, and building of lighter vessels pushed.

The commissioned personnel consists of 1 admiral, 8 vice admirals, 13 rear admirals, 1,400 line and 700 staff officers. Officers are graduates from the naval academy. There are 40,000 enlisted men, 10,000 of whom are volunteers. It is planned to add 5,000 more of these and to have the term of the drafted men 28 months.

The training, morale, and discipline are good, but lack of means causes the navy to spend most of its time in port to its consequent detriment.

Policy and doctrine.—Present indications are that in a general European war Italy would become involved and would take the side offering the greatest chances for profit. Her dependence upon the sea for supplies would almost certainly incline her to that side that had control of the sea. Italy would not be liable to go to war singlehanded against a first-class power, for her lack of raw materials and poor financial condition would not permit a protracted

struggle. In a great war mobilization would go on behind the fortified frontier until the entire army could operate. Against a smaller power Italy can be expected to immediately dispatch such forces of the army and navy as needed to enforce her aggressive policy.

CONCLUSIONS.

The effect of the doctrines of Fascism upon the fighting efficiency of a people can not be calculated. If the Fascisti régime endures it is bound to promote patriotism and an aggressive spirit. Its effect upon the morale of the Italians has already been shown in the Corfu incident.

The efficiency of any military system must be comparative. Contrasting Italy with France with approximately equal populations, Italy is inferior in strength, training, discipline, and morale in both army and aviation and slightly inferior in tonnage and efficiency in the navy. Reckoning England and France as first-class military powers, Italy must rank as second-class and inferior.

IV. *Conclusions of the committee*

The extended sea frontier and mountainous land boundary of Italy give her a distinct isolation geographically. Her position in the mid-Mediterranean is strategically advantageous with reference to trade and communication routes and in relation to international air routes. The lines to her colonies, except Libya, can not be maintained easily, and their maintenance in war, if attempted, would be a source of weakness.

Italy's lack of racial unity, the prevailing ignorance of her people, and her after-the-war internal and external problems combine to present a social and political situation which makes it wholly unlikely that she will assume a hostile attitude toward any European power.

Inasmuch as Italy is not self-supporting in food, minerals, or raw materials, she could not enter into a war of any magnitude unless those articles were furnished her from outside sources, and since she has established no policy with regard to her foreign obligations she could not finance a war by foreign loans. It is therefore concluded that Italy from economic reasons could not wage a war of any magnitude and that economically speaking, Italy would be of no value as an ally to any nation.

Italy's army and navy are both organized with a view to best prepare the nation for its military needs. The strong mountain frontiers and fortified passes will permit mobilization to proceed with comparative safety. Italy's military and naval establishments are suited to and adequate for her national defense.

In case of a major war, Italy must form an alliance which will insure to her the necessary supplies of raw materials, food, and fuel.

In the event the United States were to become involved in a war with Red, Red-Orange, or Green, Italy would probably be neutral.

ITALY

PRESENT NAVAL ESTABLISHMENT

December, 1924

Personnel: commissioned officers:

| | |
|--|-------|
| Total number in Regular navy, active..... | 1,868 |
| Regular navy, in reserve..... | 4,514 |
| Regular navy reserve called to active service..... | 61 |

Officers at sea, 35 per cent.

Number in each grade in each corps

| | Regular navy | Regular navy reserve | Regular navy reserves and serving tempor- arily |
|---|-----------------|----------------------------|---|
| <i>Line officers</i> | | | |
| Admirals..... | 1 | | |
| Vice admirals..... | 4 | 6 | 1 |
| Vice admirals of squadrons..... | 4 | 35 | |
| Division rear admirals..... | 13 | 80 | |
| Rear admirals..... | 7 | | |
| Captains..... | 34 | 72 | 6 |
| Commanders..... | 108 | 137 | 14 |
| Lieutenant commanders..... | 142 | 113 | 6 |
| Lieutenants..... | 430 | 624 | 4 |
| Lieutenants (junior grade) and midshipmen..... | 269 | 1,254 | |
| Total..... | 1,030 | 2,321 | 31 |
| <i>Engineer officers</i> | | | |
| Inspector lieutenant general..... | 1 | 2 | |
| Vice inspector general..... | 1 | 7 | |
| General..... | 1 | | |
| Colonels..... | 6 | 18 | 1 |
| Lieutenant colonels..... | 20 | 24 | 3 |
| Majors..... | 40 | 195 | 7 |
| Captains..... | 145 | 319 | |
| Lieutenants and lieutenants (junior grade)..... | 100 | 1,021 | |
| Total..... | 314 | 1,586 | 11 |
| <i>Naval constructors</i> | | | |
| Inspector lieutenant general..... | 1 | 4 | |
| Vice inspector generals..... | 2 | 7 | |
| Generals..... | 1 | | |
| Colonels..... | 7 | 16 | |
| Lieutenant colonels..... | 14 | 17 | 2 |
| Majors..... | 20 | 21 | 1 |
| Captains..... | 56 | 36 | |
| Lieutenants..... | 16 | 33 | |
| Total..... | 117 | 134 | 3 |
| <i>Sanitary corps</i> | | | |
| General in chief (M. D.)..... | 1 | | |
| General..... | 1 | 12 | |
| Lieutenant generals..... | | 2 | |
| Colonels..... | 6 | 16 | 2 |
| Lieutenant colonels..... | 21 | 42 | 3 |
| Majors..... | 45 | 52 | 2 |
| Captains..... | 80 | 112 | |
| Lieutenants..... | 30 | 45 | |
| Total..... | 184 | 281 | 7 |

Number in each grade in each corps—Continued

| | Regular navy | Regular navy reserve | Regular navy reserves and serving tempo- rarily |
|---|-----------------|----------------------------|---|
| <i>Pharmacists</i> | | | |
| Lieutenant colonel..... | 1 | | |
| Majors..... | 2 | | |
| Captains..... | 5 | | |
| Lieutenants..... | 2 | | |
| Total..... | 10 | | |
| <i>Chief chaplains</i> | | | |
| Chaplains in chief..... | 5 | | |
| <i>Commissary corps</i> | | | |
| Commissary general in chief..... | 1 | 8 | |
| General..... | 1 | | |
| Lieutenant generals..... | | 3 | |
| Colonels..... | 7 | 10 | |
| Lieutenant colonels..... | 23 | 42 | 3 |
| Majors..... | 41 | 34 | 3 |
| Captains..... | 105 | 95 | 3 |
| Lieutenants and lieutenants (junior grade)..... | 30 | | |
| Total..... | 208 | 192 | 9 |
| Grand total..... | 1,868 | 4,514 | 61 |

REGULAR NAVY

| | | |
|---|-----|--|
| <i>Warrant officers</i> | | |
| (Officers of the Royal Equiptage Corps) | | |
| Captains..... | 175 | |
| Lieutenants and lieutenants (junior grade)..... | 175 | |
| Total..... | 350 | |
| <i>Midshipmen</i> | | |
| Of the line..... | 222 | |
| Machinists..... | 31 | |
| Total..... | 253 | |

NOTE.—All midshipmen embark each year for a 3 months' cruise.
At sea: None.

Marines.—The Italian Navy has no marine infantry. For guarding land establishments the Royal Carabinieri Infantry are employed.

| | |
|--------------------------------------|-----|
| Officers..... | 8 |
| Petty officers and enlisted men..... | 502 |
| Total..... | 510 |

Naval infantry.—During the World War three infantry régiments were transferred to the navy for coast fighting. For sentimental reasons one of these régiments, "San Marco," is still retained by the navy but not kept up to full strength (at present about 500 officers and men—one battalion). This regiment is stationed at Pola.

Personnel of a separate air force.—This personnel has not yet been decided upon. For the present 200 men of the navy are temporarily attached to aeronautics.

Civilians in the naval service.—Professors at the naval academy, 22; professors at the school for naval mechanics, 3.

Numbers and employment of enlisted personnel

| | |
|--------------------------------------|---------|
| Chief petty officers: | |
| First class (a)..... | 2, 271 |
| Second class (a)..... | 718 |
| Third class (a)..... | 137 |
| Petty officers, first class (b)..... | 2, 141 |
| Total..... | 5, 267 |
| Sailors..... | 35, 324 |
| Total..... | 40, 591 |

| Classification of vessels | Armament or reduced armament | | Ready or reserve | | Total |
|--|------------------------------|--------------------|------------------|--------------------|---------|
| | Numbers of units | Enlisted personnel | Numbers of units | Enlisted personnel | |
| First and second class battleships and cruisers..... | 9 | 7, 743 | 2 | 339 | 8, 084 |
| Scout cruisers..... | 8 | 2, 008 | 8 | 920 | 2, 928 |
| Destroyers and torpedo boats..... | 55 | 3, 927 | 70 | 474 | 4, 401 |
| Submarine chasers..... | 9 | 710 | | | |
| Gunboats, mine sweepers, etc..... | 30 | 1, 053 | 50 | 313 | 1, 366 |
| Tenders and auxiliaries for local use..... | 132 | 4, 223 | 57 | 387 | 4, 610 |
| Total..... | 285 | 20, 853 | 187 | 2, 633 | 23, 486 |

Shore personnel

| | |
|--------------------|---------|
| Naval district of— | |
| Spezia..... | 4, 409 |
| Maddalena..... | 1, 592 |
| Naples..... | 995 |
| Messina..... | 1, 750 |
| Taranto..... | 2, 345 |
| Brindisi..... | 2, 426 |
| Venice..... | 1, 697 |
| Pola..... | 1, 891 |
| Total..... | 17, 105 |

Percentage of men afloat, 60.

Data on the nature of the enlistments and terms of enlistment

The enlisted force consists of—

| | |
|--|---------|
| Volunteers (6 years)..... | 11, 864 |
| Present classes now under arms (2½ years)..... | 28, 727 |
| Total..... | 40, 591 |

It is not possible to give exact figures of the reserves of enlisted personnel. This depends upon the number of classes called. About 60,000 men are now counted upon as the enlisted reserve force.

Data on colonial navies.—Italy has no colonial navy.

Total number of reserve officers and men

| | |
|---|---------|
| Officers, regular navy, in reserve..... | 4, 575 |
| Enlisted men, regular navy, in reserve..... | 60, 000 |

Complements of officers of each type of vessel

Line officers (military branch) :

Battleships—

| | |
|---------------------------------|---------|
| Captains..... | 1 |
| Commanders..... | 1 |
| Lieutenant commanders..... | 1 |
| Lieutenants..... | 10 |
| Lieutenants (junior grade)..... | 1 |
| Midshipmen..... | 4 to 16 |

Staff officers (engineers) :

| | |
|---------------------------------|---|
| Lieutenant colonels..... | 1 |
| Majors..... | 1 |
| Captains..... | 4 |
| Lieutenants..... | 2 |
| Lieutenants (junior grade)..... | 3 |

Staff officers (medical) :

| | |
|---------------|---|
| Majors..... | 1 |
| Captains..... | 1 |

Staff officers (commissary) :

| | |
|---------------|---|
| Majors..... | 1 |
| Captains..... | 1 |

Each dreadnaught carries a naval constructor with the rank of captain.

Cruiser has captain commanding, 1 commander, 7 lieutenants, 1 lieutenant (junior grade), 8 midshipmen, 7 engineer officers (1 major, 3 captains, 2 lieutenants, 1 lieutenant (junior grade)) ; 2 medical officers, 2 commissary officers, and 1 gunnery lieutenant (specialist).

Flotilla leader has 1 commander in command, 1 lieutenant commander, 1 lieutenant, 1 lieutenant (junior grade), 1 midshipman, 2 engineer officers, 1 medical officer.

Gunboat has 1 commander in command, 1 lieutenant, 1 midshipman, 1 engineer lieutenant, 1 commissary officer.

Destroyer has 1 commander or lieutenant commander in command, with 1 or 2 lieutenants and 1 engineer officer, generally grade of captain, army title.

Torpedo boat has 1 lieutenant in command and 1 engineer officer (grade of lieutenant).

Submarine has 1 commander or lieutenant commander in command, with 1 lieutenant or lieutenant (junior grade).

Number of vessels in full commission and in reserve

| | Full commission | Reserve |
|-----------------------------------|-----------------|---------|
| Battleships..... | 4 | 1 |
| Cruisers..... | 5 | 1 |
| Scout cruisers..... | 8 | 8 |
| Destroyers and torpedo boats..... | 55 | 70 |
| Subchasers (M.A.S.)..... | 9 | |
| Gunboats and mine sweepers..... | 30 | 50 |
| Tenders and auxiliaries..... | 132 | 57 |

Geographical location of vessels

Battle fleet (Taranto) : 5 dreadnaughts, 4 flotilla leaders, 16 destroyers, 5 auxiliaries.

Colonies : 10 gunboats, 3 auxiliaries, 3 torpedo boats.

On special missions: 2 cruisers, 1 coastal cruiser, 1 flotilla leader, 1 gunboat, 10 auxiliaries.

Upper Tyrrhenian: 1 coastal cruiser, 3 flotilla leaders, 7 destroyers, 17 torpedo boats, 1 gunboat, 17 submarines, 20 auxiliaries.

Lower Tyrrhenian: 2 destroyers, 10 submarines, 10 torpedo boats, 1 gunboat, 6 auxiliaries.

Ionian and lower Adriatic: 2 coastal cruisers, 5 scouts or flotilla leaders, 11 destroyers, 25 torpedo boats, 10 submarines, 5 gunboats, 12 auxiliaries.

Upper Adriatic: 2 scouts or flotilla leaders, 9 destroyers, 17 torpedo boats, 3 submarines, 5 auxiliaries.

Other small units for local use.

NOTE.—In the "Auxiliaries" are included M. A. S. or subchasers

JAPAN

REPORT OF VISIT TO OPPAMA NAVAL AIR STATION (NEAR YOKOSUKA)

November, 1924

Arriving at Yokosuka we were met by the aid to the commander in chief, Yokosuka naval station. We proceeded to the headquarters building of the Yokosuka naval station and there paid our respects to the vice admiral in command.

We were walked through the navy yard to the boat landing adjacent to the large building ways. On the building ways we saw the remains of the *Amagi*, the scrapping of which was practically completed. We were informed that very soon the cruiser *Myoko* would be laid down or as soon as the last of the *Amagi* was removed. It is estimated that the ways can be cleared for the laying down of the *Myoko* within two weeks.

We then boarded a picket boat and proceeded to the naval air station. On the way to the air station, the *Haruna*, *Yamashiro*, one light cruiser of the 5,500 ton class, the *Hosho*, and several other ships were seen close to (500 yards). No air craft or launching device for air craft was observed on the *Haruna*, *Yamashiro*, and the light cruiser.

The aid to the admiral informed us that no permanent installation for launching air craft was installed on any ship except the light cruiser *Kiso*, and that for training purposes alone a wooden platform was built on the battle cruiser or battleship type for launching aircraft.

Submarines *RO-57*, *RO-58*, and *RO-59* were also passed close to (100 yards) and the following was observed:

No bow rudders on deck (probably have submerged bow planes), one small patent anchor on port bow, Y tube with three rubber tits on deck well forward, long bridge (not chariot type), loop

antennae (same rig as on United States S-type submarines), stub mast forward and aft for flat top radio antennae (about 10 feet high), antiaircraft gun in forward part of bridge, one periscope was seen up having estimated house of 10 feet. This periscope was tapered to small diameter at the top; clearing lines similarly installed as in United States S-type. These submarine are single hull type. The aid said that they were partly double hull, probably meaning that they had U-shaped tanks. There was no gun on deck and the antiaircraft gun was very short.

The aid further stated that there were no planes in Japan for submarine use and expressed the opinion that planes for submarines were not worth while. He also said that none of the IIA type submarines had any crew now on board, these submarines being in reserve. Upon nearing the Island of Hohashima seven oil tanks of about 55,000 barrel capacity were seen. Four of the tanks were partially collapsed, evidently as a result of the earthquake of September, 1923.

In the outer harbor we passed close aboard the *Hosho* (400 yards) and observed as follows:

- (a) The deck at the stern has a pronounced dip.
- (b) Four guns about 5 inch.
- (c) Three funnels on starboard side, which we were informed could be folded down outboard.
- (d) One mast starboard side, outboard, also folding.
- (e) Two antiaircraft guns forward, one on each side, which were said to be capable of housing to clear deck for landing planes.

We were informed that the *Hosho* was not considered very satisfactory due to too small deck and excessive pitching. Also that the Sperry stabilizer did not reduce the roll sufficiently to be of practicable use. During the maneuvers no land planes were used from the *Hosho*. The "Handa" type twin float seaplane was used exclusively and this plane took off from the deck of the *Hosho* by means of placing a "dolly" under each pontoon, the plane thus taking off as a land machine. These planes, on returning, landed in the water and were then hoisted aboard. It was also stated that landing in rough seas during the maneuvers had damaged most of this type plane. Informant stated that at present the *Hosho* had on board a total of about seven planes of the "Handa" type and of the Mitsubishi No. 1 type. It is believed that one reason for employing this seaplane type on the *Hosho* during the maneuvers was because the maneuvers were held adjacent to the Bonins, which we were told possessed a good harbor for seaplanes but no landing field.

The "Handa" type plane from the *Hosho* was said to have established the first contact during the recent fleet maneuvers.

Arriving at concrete pier we were taken to the headquarters building of the air station and there paid our respects to Captain Inouye, in command. Lieutenant Senda, of the Japanese Naval Air Service, there joined the party and we started inspecting the hangars and planes therein. The previous description of hangars is correct except as follows:

(a) There are three canvas covered skeleton steel structure hangars capable of housing six Mitsubishi No. 4 planes each at the flying field. It was stated that next year permanent hangars would replace these present hangars, if the money was appropriated.

(b) There are seven ramps instead of six.

(c) One canvas-covered hangar for SS type lighter-than-aircraft.

In the large hangar for F-5 boats were seen 12 F-5 type in various stages of assembly. Three F-5 boats were anchored just off the ramps. A list of all planes seen is given below:

- 5 Mitsubishi No. 1, 1924 model.
- 8 Mitsubishi No. 4, 1924 model.
- 1 Mitsubishi No. 3, old model.
- 2 Mitsubishi No. 3, fuselage.
- 15 F-5 boats.
- 14 Yokosuka type training seaplanes.
- 4 Handa type seaplanes.

NOTE.—One of the above Mitsubishi No. 4 was equipped with 400 horsepower Lorraine Dietrich of foreign manufacture.

General description of the planes seen is as follows:

Mitsubishi No. 1, 1924 model.—This is a pursuit plane and is said to be used on the *Hosho*. Single bay biplane, R. A. F. wires, 300 horsepower Hispano Sniza engine, wing spread 30 feet, cord 5 feet, gap 5 feet, fuselage 20 feet, wooden construction throughout. Wings similar in shape to SE5, but about same thickness as MB3. Fuselage 4 longeron type, wood, linen covered. Balanced ailerons, elevators, and rudder. Adjustable stabilizer. Equipment, two synchronized machine guns. No camera, wireless or bomb racks. Speed 148 miles per hour. Propeller, wood; radiators, 2 Lamblin underwing beside landing-gear struts. Both plane and engine made in Japan. Has folding wings.

Mitsubishi No. 3.—Torpedo and bombing plane. Double bay triplane, wing spread about 35 feet, cord 3½ feet, gap 4 feet, length fuselage 25 feet, engine 300 horsepower, Hispano Suiza. Plane now discarded as unsatisfactory, no specific reasons given. Some of these have been converted into Mitsubishi No. 4.

Mitsubishi No. 4, 1924.—Torpedo and bombing plane. This machine is a new model biplane built by Mitsubishi (Kobe) and tested

early this year. It replaces the Mitsubishi built triplane which proved unsuccessful. It is used as a torpedo carrier or as a bomber. The torpedo used is about 18 inches in diameter, no more, possibly less, and is a longer torpedo than the Bliss Leavitt Mk. VII. model 4. The war head was not seen but the exercise head is about 3 feet long. This torpedo was said to be a Japanese modified Whitehead, weight 1,500 pounds. This plane is fitted with bomb releases for two bombs, and was said to normally carry two 500-pound bombs when used as a bomber. The Japanese seem well pleased with this machine. It is a triple bay with wing spread of $48\frac{1}{2}$ feet, cord is about $5\frac{1}{2}$ feet, and a gap of 5 feet. Fuselage is about 28 or 30 feet long. Structure is of wood, with the exception of the inner plane struts, which are steel tubing stream lined with sheet metal. The plane has balanced ailerons, rudders, and elevators, and an adjustable stabilizer. The wings are of high-lift design, having a camber of 6 inches thick. Engines, 450 horsepower, Napier Lion. Equipment: Two synchronized machine guns forward, torpedo carrying gear, radio and Wimpers bomb sight. It was stated that the plane, with five hours' fuel, a pilot, bomber, and one 1,500-pound torpedo has a maximum speed of 80 miles per hour. The pilot's seat is located so as to provide visibility forward and above, as the center section has been cut away. This machine has folding wings and a method of balancing the ailerons which is not customary in United States design.

"Handa" type seaplane.—Thick wing monoplane seaplane; engine, 300 horsepower Hispano Suiza, two floats. It was stated that this plane is designed from the German Hansa Brandenburg, six or seven of which were delivered by Germany to Japan as part of the reparations. All of these planes were wrecked during the earthquake, according to the statement of the officers. This plane has a wing spread of about 45 feet, cord of about 8 feet at the fuselage and about 4 feet at the wing tips. The wings have wooden spars and ribs, are linen covered and braced externally, steel tubing running from the undercarriage structure to the tips of the wings. The fuselage is 4 longeron type, about 25 feet long, and covered with laminated wood. Rudders and elevators are balanced. This plane is used for observation and reconnaissance and has about five hours' cruising radius. This type used on *Hosho*.

Yokosuka training and observation seaplane.—Twin float, two seater, training seaplane, three bay type, 220-horsepower engine, designed by naval officer six or seven years ago, now obsolescent, wing spread about 40 feet, cord 5 feet, gap $4\frac{1}{2}$ feet, fuselage 30 feet, wing and tail floats. Hispano Suiza engine. New type now being

experimented with which is about same size, but of more modern design, equipped with Benz engine, horsepower not stated.

F-5 L flying boats.—Standard type, equipped with Rolls-Royce Eagle VIII engines, used for scouting and bombing. Those now in use manufactured by Short Bros., England, but now are being built in Japan. Equipment: Bombs, radio, machine guns in bomber's cock. It is stated that these are going to be equipped with Napier Lion 450-horsepower engines.

General aviation notes not covered previously which were supplied by the escorting officers:

(a) Observation and scouting planes are equipped with British type 82 wireless sending and receiving sets.

(b) Bombing and torpedo planes equipped with Wimpe bomb sights similar to present Navy type. The planes of this station are used for spotting torpedoes during torpedo practice.

(c) Plane torpedo was very hard to make go straight.

(d) F-5 L boats employed for ship spotting using British type 82 two-wire radio. A great deal of plane spotting is engaged in.

(e) At the present time at this station were 10 officers and 5 enlisted men pilots.

(f) Three and five ship flying formations used employing F-5 L type.

(g) Bombs are of 500 pounds, are manufactured in Japan; some 600-pound bombs are used, but these are English manufacture.

(h) The *Iwami* was bombed with 600-pound bombs carried by both F-5 L and Mitsubishi No. 4 torpedo plane. The bombs were dropped from about 1,000 feet. It was stated by one of the officers who took part in the bombing that it was very easy to hit a target from this low altitude.

(i) All spotting is with wireless telegraph, telephones were not very successful.

(j) One escorting officer said that the Navy was not interested in the Dornier planes but was interested in the Rohrbach plane. Another officer said the Navy would use the Dornier plane if they proved worth while.

(k) No nonstop flight has been made to the Bonin Islands. There is no landing field there. There is a good harbor for a permanent seaplane station. Oshima Island, off Tokyo Bay, has been frequently visited by seaplanes but there is not sufficient protection for a permanent seaplane station; there is no landing field, and it is too mountainous to establish one.

(l) Three squadrons are allotted by the organization to this station; one bombing squadron, one scout squadron, and one pursuit squadron. The organization calls for eight planes to the squadron and eight additional planes in reserve.

(m) There is no lighter-than-air craft now at the station and none would be stationed there in the future. The SS type dirigible that was formerly at this station is now permanently assigned to the Kasumigaura station.

(n) No planes were equipped with Japanese-built Lorraine Dietrich motor. These motors are being built but none yet completed.

(o) A German Zeppelin was received by Japan as part payment of reparations. Some parts of the ship were missing and it has never been completely assembled. Parts of this Zeppelin are used for instruction purposes.

After visiting all the hangars we proceeded by automobile to the flying field crossing over a small bridge. Upon arriving at the hangars we went through these three hangars and saw the Mitsubishi machines No. 1 and No. 4 and the Mitsubishi triplane No. 3, all of which have been previously described.

The western part of the flying field could not be clearly seen but it appeared not to be completely reclaimed. The field was said to be about 500 meters long and was considered to be too short.

The SS hangar was seen to be on higher ground than the reclaimed field. The flying field is fairly level but appeared rather rough and not well kept up.

Upon returning to the hangars we were shown the storehouse of concrete in which were stowed about 20 torpedoes of the type used with the torpedo plane (Mitsubishi No. 4, 1924 model). These torpedoes looked to be well cared for. This storehouse is a rather small one-story building having an estimated stowage capacity of 40 torpedoes.

Upon interrogation the aid stated that the buildings on the breakwater were used in connection with torpedo testing on the torpedo range which extended to northwest of the breakwater.

These buildings are large concrete two or three story buildings. There are two or possibly three of them. One building was inclined slightly, apparently due to the earthquake. The breakwater in several places is sunk below the level of the rest of the breakwater.

Drawn up on the ramps at the main air station were three Yokosuka type seaplanes which we were informed were waiting for the wind to moderate before starting a nonstop flight to vicinity of Nagoya.

The air station visit was now over and we got into the picket boat and returned to Yokosuka naval station. On the way back the tanker *Kamoi* was pointed out. This ship was said to be operating very successfully with her electric-driven installation. Upon round-

ing the point just prior to entering the narrow boat channel seven partly turf-covered buildings were seen with tile roofs. These were stated to be magazines. These buildings are set at the base of the hills running along the point and are therefore completely concealed and protected from gunfire from seaward. They should be plainly visible from the air.

Adjoining these magazines was seen a very large and long coal pile of briquettes. The dimensions of the coal pile are roughly 300 yards by 10 yards high by 20 yards wide.

Upon nearing the naval station the new destroyers Nos. 1, 3, 5, and 9 were seen at a distance but close enough to see that the tubes were twin. The No. 9 has not been reported as in commission, but she appeared complete and no workmen could be seen on her decks.

In the distance was seen alongside the dock a very large ship partly completed. This was stated to be the *Kaga*, which is being converted into an airplane carrier in place of the *Amagi*. The hull of the *Kaga* was complete and red-lead. No structure of any kind was visible above the main deck.

In the naval station signs of the great damage done to the buildings by the earthquake was still very apparent. A very few new buildings were seen. Many buildings were temporarily repaired with corrugated-iron walls and various patchwork.

JAPAN

EXPANDING KASUMIGAURA AIRDROME

December, 1924

It is reliably reported that the Kasumigaura airdrome, the largest in the Orient, will in the near future be expanded in all respects by the naval authorities so that it may become in name and fact one of the best airdromes in the world. Negotiations are in progress for the purchase of the adjacent tract of land extending over 600,000 tsubo. [NOTE.—A tsubo is an area 6 ft. square.]

When the above additional land is duly purchased, the existing range of the Kasumigaura Aviation Corps will be decidedly expanded so as to convert the airdrome into the national headquarters of the Naval Air Service, with a training school of aviators, air-works, and various other associated institutes annexed.

JAPAN

MISCELLANEOUS NAVAL NOTES

December, 1924

Changes of assignments of higher officer.

The following changes in personnel assignments have been announced:

| | New Assignment |
|--------------------------------|---|
| Admiral K. Suzuki..... | Member, War Council. |
| Admiral K. Okada..... | Commander in chief, first fleet and combined fleet. |
| Vice Admiral H. Kato..... | Commander in chief, Yokosuka and member board of admirals. |
| Vice Admiral H. Saito..... | Commander in chief, second fleet. |
| Vice Admiral S. Horiuchi..... | Attached to general staff. |
| Vice Admiral K. Uchida..... | Attached to general staff. |
| Vice Admiral K. Otani..... | President naval college. |
| Vice Admiral Y. Yamamoto..... | Commanding fifth division. |
| Vice Admiral M. Osumi..... | Attached to general staff. |
| Rear Admiral N. Iida..... | President torpedo school. |
| Rear Admiral K. Yamanashi..... | Attached to general staff. |
| Rear Admiral T. Inuzuka..... | Attached to general staff. |
| Rear Admiral N. Uyemura..... | Chief hydrographic office. |
| Rear Admiral Y. Kabayama..... | Chief of staff, Kure. |
| Rear Admiral N. Nagasawa..... | Commanding first destroyer squadron. |
| Rear Admiral S. Takahashi..... | Attached to general staff. |
| Rear Admiral R. Nakamura..... | Staff officer, general staff; member of technical board. |
| Rear Admiral N. Kanna..... | Attached to general staff. |
| Rear Admiral T. Seki..... | Commanding Sasebo defense corps. |
| Rear Admiral O. Nagano..... | Commanding third division. |
| Rear Admiral H. Tamura..... | Commanding Yokosuka defense corps; member of technical board. |
| Rear Admiral M. Ando..... | Staff officer, general staff; member technical board. |
| Rear Admiral S. Sakouji..... | Chief of personnel bureau. |
| Rear Admiral T. Nakajo..... | Attached to Kure. |
| Rear Admiral J. Takahashi..... | Chief instructor naval college; member of technical board. |
| Rear Admiral M. Ide..... | Staff officer, general staff. |
| Rear Admiral T. Watanabe..... | Chief general section, naval technical department. |
| Rear Admiral H. Fukuyo..... | Attached to Kure. |
| Rear Admiral K. Kishikawa..... | President submarine school. |
| Rear Admiral R. Takahashi..... | Commanding first destroyer squadron. |
| Rear Admiral K. Endo..... | Attached to Sasebo. |
| Rear Admiral T. Sakamoto..... | Attached to general staff. |
| Rear Admiral M. Kumashiro..... | Attached to Kure. |
| Captain T. Murase..... | Commanding <i>Hiyei</i> . |
| Captain N. Ominato..... | Commanding <i>Yamashiro</i> . |
| Captain S. Nakajima..... | Commanding <i>Nagato</i> . |
| Captain H. Fujita..... | Commanding <i>Kirishima</i> . |
| Captain Y. Shima..... | Chief of staff, second fleet. |

New Assignment

| | |
|---------------------------|---|
| Captain K. Wada..... | Commanding <i>Is.</i> |
| Captain K. Uda..... | Commanding <i>Setsu</i> . |
| Captain N. Imamura..... | Commanding <i>Hyogo</i> . |
| Captain K. Ijichi..... | Commanding <i>Sagami</i> . |
| Captain T. Ikeda..... | Commanding <i>Tokushima</i> . |
| Captain C. Takahashi..... | Commanding <i>Jingei</i> . |
| Captain S. Matsuyama..... | Commanding <i>Isary</i> . |
| Captain S. Yuchi..... | Commanding <i>Kasuga</i> and <i>Azuma</i> (instruction), Yokosuka barracks. |
| Captain Y. Edahara..... | Commanding <i>O.</i> |
| Captain N. Kondo..... | Commanding <i>Haruka</i> . |
| Captain S. Fukuoka..... | Commanding <i>Nishiki</i> . |
| Captain S. Inouye..... | Commanding <i>Natori</i> . |
| Captain T. Yamamoto..... | Commanding <i>Yakagi</i> . |
| Captain K. Takida..... | Commanding <i>Tenryu</i> . |
| Captain S. Omoto..... | Commanding <i>Chogei</i> . |
| Captain G. Tsurumi..... | Commanding <i>Tsurumi</i> . |
| Captain M. Imagawa..... | Commanding <i>Kuma</i> and <i>Chitose</i> . |
| Captain K. Mizuno..... | Commanding <i>Kiso</i> . |

RENAMING OF JAPANESE SUBMARINES

The following information has been furnished by the Japanese Navy Department relative to renaming of submarines. The changes are effective as of 1 November, 1924:

| Old numbers | New numbers | Old numbers | New numbers | Old numbers | New numbers | Old numbers | New numbers |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 14 | HA-9 | 31 | RO-1 | 44 | 1-51 | 68 | RO-29 |
| 18 | RO-1 | 32 | RO-4 | 45 | RO-20 | 69 | RO-30 |
| 19 | RO-11 | 33 | RO-5 | 46 | RO-47 | 70 | RO-31 |
| 20 | RO-12 | 34 | RO-17 | 47 | RO-28 | 71 | RO-32 |
| 21 | RO-2 | 35 | RO-18 | 48 | 1-51 | 72 | RO-61 |
| 22 | RO-4 | 36 | RO-10 | 49 | 1-22 | 73 | RO-62 |
| 23 | RO-13 | 37 | RO-19 | 50 | 1-25 | 74 | 1-1 |
| 24 | RO-5 | 38 | RO-20 | 51 | 1-52 | 75 | 1-2 |
| 25 | RO-51 | 39 | RO-21 | 52 | RO-30 | 76 | 1-3 |
| 26 | RO-42 | 40 | RO-22 | 53 | RO-27 | 77 | 1-34 |
| 27 | RO-54 | 41 | RO-23 | 54 | RO-26 | 78 | 1-35 |
| 28 | RO-54 | 42 | RO-24 | 55 | RO-28 | 79 | RO-68 |
| 29 | RO-55 | 43 | RO-25 | 56 | 1-70 | 80 | RO-63 |
| 30 | RO-56 | | | | | | |

NOTE.—It will be noted that the 1-58 and RO-64 is not shown in the above list. It is not known why these two boats were left out by the Japanese Navy Department, but it is assumed that they will retain their same number.

JAPAN

NOTES FROM THE JAPANESE PRESS

Personnel retrenchment

The number to be reduced has tentatively been decided to be about 400 above the rank of warrant officer. As a result of the repeated personnel reduction there are at present 6,000 officers and 68,000 men and the coming reduction will amount to about 7 per cent in officers and 3 per cent in men. The officers to be retired will mostly be in the rank above commander.

Close Port Arthur naval garrison

The naval garrison headquarters is to be discontinued from this month in accordance with the previously decided naval retrenchment plan. The garrison force will be withdrawn December 2, 1924, and return to Sasebo, where they will be attached to the naval station there. The naval wireless plant of the Port Arthur garrison will be transferred to the control of the Sasebo naval station, and the buildings which have been used as the garrison headquarters will be turned over either to the Kwantung Government or South Manchuria Railway. After the abolition of the naval garrison headquarters at Port Arthur there will remain no naval defense force or naval establishment along the coast of Manchuria.

Ship construction

The work on the *Akagi* is being rushed. The flying deck is almost complete and work is proceeding on the installation of her engines. She is to be expected to be ready for launching in the latter part of March, 1925.

The keel of the light cruiser *Nachi* (10,000 tons) was laid down at the Kure naval dockyards on November 26, 1924 with appropriate ceremonies.

Orders for the below named destroyers have been placed:

Under 1923-24 building expenditure: Destroyer *No. 29*, Fuji-Nagata Dock, Osaka.

Under 1924-25 building expenditure: Destroyer *No. 28*, Uraga Dock, Uraga; Destroyer *No. 30*, Ishikawajima Dock, Tokyo; Destroyer *No. 31*, Maidzuru Navy Yard.

The laying of the keel of submarine *I-54* took place at the Sasebo naval arsenal about November 15, 1924. She is to be of the same type as the *I-51* and *I-52*, but greater improvements will be effected.

From a reliable source it has been ascertained that the submarines now under construction are building at the following yards: Kure Navy Yard, *I-52*, *I-53*, *I-55*; Kawasaki, Kobe, *I-1*, *I-2*, *I-3*; Mitsubishi, Kobe, *RO-63*, *RO-64*, *RO-68*.

Navy to construct new torpedo factory at Kure

A new torpedo factory covering an area of about 5,000 tsubo will be constructed by the Kure naval arsenal on the reclaimed land of Karasu Kojima in the naval port of Kure. The reclamation work will be finished this year and the factory will be completed by March next year.

Improvement in side rudders of submarines

The side rudders which are characteristic of submarines, used for diving and floating, are invariably found faulty in their wave resistance and very often when out in the open seas, the side rudders of the submarines get out of order and the submarine becomes incapable of submersion. This sort of thing happened with the submarines during the recent naval maneuvers and on September 8, while at anchor off Ariake-wan encountered a hurricane and every one of the submarines sustained damages to their rudders.

Thus an improvement in design and construction of a stronger rudder has been under study for some time past. The Submarine Experimental Laboratory at Kure navy yard has recently invented a side rudder strong enough to withstand wave resistance and this will be installed in a certain new submarine which is to be launched shortly and is expected to make much improvement in our submarines in the future.

Big monoplane purchased by Japan from Denmark

It is reported that a big monoplane ordered by the Navy arrived at Oppema Naval Station November 17, 1924, from Copenhagen.

The flying boat was built at a factory under German management in Copenhagen. The two motors are mounted above the wings, and two wheels can be fixed on either side near the float for land transportation. The two motors are by Rolls Royce of 370 horsepower each, its top speed is 118 miles, maximum height attainable 11,500 feet, spread of wings 95 feet 8 inches and weight 8,360 pounds.

An "all steel" monoplane imported some time ago from Germany and set up at the Kobe Kawasaki dockyard made its trial flight at Hyogo Karumojima for about 20 minutes on the morning of November 4, piloted by a German specialist. A similar flight took place on the following day. The machine develops 80 horsepower and a speed of 100 knots; the wing expanse is 10 meters, the body 7 meters long. At the yard a similar machine to accommodate six people will shortly be set up.

NOTE.—It is believed that this monoplane is the Dornier-Libille flying boat.

Manufacture of all-metal planes in Japan

In view of the adoption of all-metal planes by Japan, the Kawasaki dockyard, Kobe, the company through which these planes were imported, is making arrangements for their manufacture and is engaging several engineers from Germany.

France, the country which was largely responsible for the progress of aviation in Japan, is said to be displeased with the importation of German planes.

A monoplane which was constructed by the Nagoya Clock Co., Nagoya, as an experiment under orders from the Japanese Navy Department has been assembled and is waiting the arrival of a motor (Hispano 200 horsepower) when it will be given a trial in Nagoya harbor.

Two all-metal airplanes recently purchased from Germany by a Japanese firm, are expected to arrive in Tokyo December 3, 1924, by air. Both machines were tested by the Kawasaki Dockyard Co. Another battle plane, recently purchased from Germany, reached Tsuchiura December 2, and will be brought to Kasumigaura air-drome in a few days. The Japanese Government is planning to buy several planes of the same type.

The Dornier metal airplane of a type that the Japanese Government is considering purchase, left Kobe shortly after 9 o'clock December 3 and reached Kasumigaura at 1.05 the afternoon of December 3. The Kawasaki Dockyard Co. has gained the rights for reproduction of the airplane in Japan.

This has two Rolls Royce 360 horsepower motors, speed 110 miles, weight 4,620 kilograms, carrying capacity 1,500 kilo, wing spread 22.5 meters, height 4.7 meters.

Under the existing program the number of Navy flying companies is to be increased up to 17 during the period 1925-26 to 1929-30. It has now been decided to make a further increase of 6 companies over what is now contemplated, that is, the number of companies will be increased to 23 up to 1929-30.

Two F-5 hydroplanes built by Hiro yard are to be sent to Sasebo on December 12, 1924, by air.

Naval accidents in Japan since August, 1923

*Submarine No. 70 (uncompleted).—*Date: August 21, 1923, 1.10 p. m. Sank while undergoing official submerged cruise trial off Kariya, eastern part of the Inland Sea. Number of deaths, 88. Cause: (a) Failure to shut distributing valve for compressed air (b), failure to close the hatch to No. 5 tank, (c) premature opening of hatch.

*Submarine No. 26.—*Date: October 29, 1923, 3.40 p. m. Sank while moored in Kure naval port. Deaths: None. Cause: Owing to failure of torpedo to leave tube while engaged in practice in Hiroshima-wan, while workmen were effecting repairs the inner door of tube was opened and water rushed in from sea.

Submarine No. 43.—Date: March 19, 1924, 8.53 a. m. Sank off Sasebo naval port. Number of deaths: 46, including the commanding officer. Cause: Collision with the *Tatsuta*.

Submarine No. 45.—Date: June 16, 1924, 11 a. m. While engaged in practice in Hiroshima-wan the rudders suddenly went out of order and she sank to a depth of 170 feet taking a vertical position. However, she was brought to the surface safely. No deaths.

Ise.—Date: February 6, 1924, 3.13 p. m. While at anchor off Kure, fire in the galley which was put out with the assistance of other ships in the harbor.

Sinking of boat belonging to the Kusunoki.—Sank in Chinka harbor while bringing men from shore to the ship. Number of deaths, 15.

Submarine No. 22 and Ondo.—Date: April 8, 1924. While the submarine was engaged in firing torpedoes in Hiroshima-wan, one of the torpedoes which was in the tube receded, seriously injuring a man. The practice was called off and while the submarine was entering Kure she collided with the bow of the *Ondo* which was at anchor. Damages on both sides were slight.

Destroyers Kisaragi and Fubuki.—Date: March 1, 1924. The *Kisaragi*, which left Osaka en route to Yokosuka, while off the coast of Kii, developed trouble in her starboard condenser and was unable to make any headway. The *Fubuki* came to her assistance and while so doing they collided causing serious damage to the bow of the *Kisaragi* and amidships on the starboard side of the *Fubuki*.

Kongo and submarine No. 62.—Date: June 14, 1924. The submarine No. 62 collided with the *Kongo* outside of Kagoshima-wan. The bow of the submarine came in contact with the moving propeller of the *Kongo* and considerable damage was sustained.

Destroyers Nos. 4 and 18.—Date: July 27, 1924. While engaged in night practice in Tsushima Channel the destroyers Nos. 4 and 18 collided. The No. 4 had her bow damaged and No. 18 suffered damages in her engine room, torpedo tube, and oil tank. Both were badly leaking and were in danger of sinking.

Destroyer No. 4.—Date: July 6, 1924. While at anchor in Beppu Harbor her anchor chain snapped during a severe storm and she was blown on the sandy beach.

Submarine No. 24.—Date: July 29, 1924. She collided with a steamer which was at anchor off Moji. Damage to the submarine was slight but the steamer had a large hole in her bow.

Adzuma.—September 1, 1924. Went aground in Sasebo naval port.

Submarine No. 36.—The conning tower was enlarged to double its original size to increase her efficiency and on September 13, 1924, she proceeded to Hiroshima-wan to undergo diving tests and as she was having her trim tank filled she suddenly began to go down

perpendicularly by the bow. The tanks were emptied and she came to the surface. If above had happened while diving under-way the submarine would have almost certainly been lost.

Kaki.—September 26, 1924. While engaged in maneuvers the *Kaki* collided with a schooner off Tokuyama. The schooner suffered damages to her bow, while the *Kaki's* starboard side was stove in for about 5 feet square.

As regards aviation accidents they are too numerous to mention, the following being a few:

Dirigible SS No. 3.—Date: March 19, 1924. While returning from Yokosuka to Kasumigaura she caught fire, with the result that she was entirely destroyed and the crew of six were killed. On May 30, 1924, while flying over Kasumigaura, an explosion took place in a 1921 type battling plane and one man was killed.

The cruiser *O1* was damaged by fire on November 19, 1924, at Kure. The blaze was quenched by the efforts of the crew and men from other warships in the port, but not before serious damage had been caused. The authorities are keeping secret the cause of the fire.

Japan to erect wireless on Yap

The Japanese Government has decided to erect a radio station on Yap Island at an estimated cost of ¥1,500,000, and this amount has been requested in next year's budget. The right of erecting radio stations on Yap Island is retained by Japan and the United States in the provisions of the Japan-American agreement in the Versailles treaty, and the Japanese Government has decided to start the construction of a radio plant having a capacity of 50 kilowatts. The construction is expected to start next year, if the appropriation is approved by the Diet.

RUSSIA

AVIATION NOTES

December, 1924

Ordered airplanes from Holland

It is reliably reported that the Fokker company has received an order from the Russian Government for 400 airplanes. It is stated that the first 200 of these airplanes are of the *D-13* type and have been built and shipped. Some of these 200 were equipped with Napier "Lions" and some with Liberty engines, the exact proportions not being known. The *D-13* is a two-place general service airplane. The informant further stated that the remaining 200 are now being manufactured and that they are to be practically

identical with the *D-13*, except they are single-place and are all to have Napier "Lion" engines. He stated that the standard of workmanship in the Fokker plant appears to be high, but there were many features of design and construction practice which would not pass either British or American inspection.

Activities of a Russian aeronautical organization

The following describes the activities of a volunteer aeronautical society in Russia, entitled the "Dobroliot."

The activity of Dobroliot commenced in June of last year. Although it was planned in the beginning to issue 500,000 rubles worth of stock, it was later decided to increase the capital up to 5,000,000 rubles. Up to the present time, there were more than 2,000,000 shares subscribed for.

During the preceding year the activities of the Dobroliot, in the summer as well as in the winter, consisted in experimental and organization work. The first experiment was the opening of the Moscow-Nishni Novgorod line. Further, the great flight from Moscow to Novonikolaevsk was carried out for the purpose of reconnoitering the Siberian line Moscow-Vladivostok, but the establishment of the line was postponed for the time being. During the winter, the "Dobroliot" extended quite a network of its agencies with the S. S. S. R. Union. The society bought 24 airplanes from the Junkers System and constructed 24 sheds with all the latest improvements. About 100,000 rubles was spent for their construction. The instruction courses for civilian air pilots and mechanics have already turned out six qualified civilian flyers. The society numbers about 1,000,000 shareholders, and it is planned to intensify the propaganda among workmen and farmers, in order to increase the number of stockholders.

The future work of the Dobroliot will consist, in the first place, in extending the air network and the aerial survey experiments. Of the lines to be newly opened, there must be mentioned the Moscow-Nishni Novgorod-Kazan line, which will be opened on the 25th of June. Flights take place regularly, twice a week and during the Nishni Novgorod market daily. However, in view of the unprofitableness of the line, it is not contemplated to run it in the future.

The Central Asiatic air line, Tashkent-Alma-Ata, is already opened up; the Bokhara-Khiva air line was to be opened on the 1st of August. Three airplanes were already sent out on this stretch, and two were to follow suit. As the Central Asiatic lines are profitable, a further considerable extension has been arranged for.

SWEDEN

OPERATIONS OF BOFORS FACTORY

November, 1924

Orders recently placed with the Bofors Company consist (in part at least) of the following:

(a) Two large-caliber pieces for Great Britain. Value not known, supposed to be in the nature of experiments; hence for military political purposes this order may be disregarded.

(b) Order placed by Mexico for heavy field artillery possibly even of the caliber of siege guns. Actual number of guns, and caliber, and value of order, not known.

(c) A very large order of extremely powerful and heavy coast-defense guns for the Dutch East Indies; value, etc., not known.

It is stated that the order for this coast artillery for the Dutch East Indies is deserving of further investigation and it is said that a previous similar order of two was placed with this same company.

The information concerning the Dutch order coincides with previous reports, the interesting feature of this new development being the reported large size of the order, the reported heavy caliber involved, and the fact that the order is for use in the Pacific region.

SPAIN

NAVAL NOTE

December, 1924

Loss of the Espana

The *Espana*, which has been on the rocks north of Mellilla for a number of months, is now given up as an entire loss. A severe storm has caused her position to shift so that it is now considered impossible to salvage her.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

NUMBER 2—1925

FEBRUARY, 1925

DISTRIBUTION

In general Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

NUMBER 2—1925—FEBRUARY, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

| | | |
|--|--|---------|
| GENERAL: | | Page |
| Naval aviation of certain countries..... | | 1-46 |
| Comparative personnel strengths of treaty navies..... | | 47-56 |
| ARGENTINA: | | |
| Proposed installation of a navy shipyard at Darsena Norte..... | | 57-58 |
| BRAZIL: | | |
| Naval forces for 1925..... | | 58 |
| FRANCE: | | |
| Experimental aircraft..... | | 59 |
| Naval notes..... | | 60 |
| GERMANY: | | |
| Naval notes..... | | 60 |
| GREAT BRITAIN: | | |
| H. M. S. Furious—general arrangement..... | | 60-65 |
| H. M. S. Vindictive..... | | 65-66 |
| H. M. S. Adventure..... | | 67 |
| Agememnon bombing trials..... | | 67-75 |
| Malta as an air base..... | | 75-76 |
| Naval notes..... | | 76-79 |
| ITALY: | | |
| Description of new seaplane..... | | 79-81 |
| Miscellaneous notes..... | | 81-86 |
| JAPAN: | | |
| Vessels attached to naval stations..... | | 86-87 |
| Light cruisers..... | | 87-88 |
| Submarines..... | | 88-93 |
| Airplane carrier Akagi..... | | 93-94 |
| Miscellaneous notes on Kure naval station..... | | 94 |
| A visit to Hiro navy yard..... | | 95-96 |
| Naval notes..... | | 96-98 |
| POLAND: | | |
| Future building program..... | | 99 |
| PORTUGAL: | | |
| Naval establishment—tactical organization..... | | 99-100 |
| RUSSIA: | | |
| Building program..... | | 100 |
| Naval note..... | | 100 |
| SWEDEN: | | |
| New destroyers..... | | 101-102 |
| New naval dry dock..... | | 102 |
| TURKEY: | | |
| Naval notes..... | | 102-103 |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

GENERAL

NAVAL AVIATION OF CERTAIN COUNTRIES—COMMENTS ON ORGANIZATION

January, 1925

THE NAVY AND ITS AIR SERVICE

The subject of the Navy and its Air Service will be discussed under the following general headings: I. Preliminary discussions; II. examination of organizations in air services of other navies; III. comments on certain features that apply to an Air Service for the United States Navy.

I

Preliminary discussion

Should the Navy of the United States retain its present form of Air Service, or should it give over the organization and control of such a service to another department of Government that would administer all aviation activities, military, naval, and civil? The answer to this question can in part be found by examining the naval air services of other countries, and the reactions that are evident from the various forms of organization. Such countries are affected by their geographical position, and their particular problems of national defense. The final answer for the United States should be based on the evident experience of other countries in their air organizations, combined with the particular requirements of this country in matters of locations and war requirements.

The purpose of a Naval Air Service is to contribute to fleet readiness for battle. Peace time organization must therefore be built with that objective and no other in view.

II

Examination of organizations in air services of other countries

GREAT BRITAIN

Until April 1, 1918, the air services of Great Britain were organized on lines similar to those in effect to-day in the United States. The immediate cause of the change to a united air force was the critical situation on the western front in France, and the need of concentrating every available air plane to meet the German menace.

At the time in question, the German High Seas Fleet was practically a broken instrument confined to its naval bases, but the German Army was sweeping forward into France. The British Navy gave up to the army its naval aviation to meet an emergency in the progress of the war. It is also to be noted that at the time in question, the full importance to the fleet of its air service in all strategical developments and tactical maneuvers was not fully appreciated.

Upon the conclusion of the war, the experience of Great Britain close to her chief enemy, with the memory of the air raids on London, stressed the necessity of a strong home defense air force to meet the possible repetition of air attacks from adjacent countries. This matter of geographical position with its accompanying problems of national defense should be borne in mind in comparing the air requirements of Great Britain with those of the United States.

The estimate of the situation in the matter of air needs for this country, on the outbreak of hostilities, rests upon quite a different set of factors to those of Great Britain if confronted by a European war. In the case of a war area at considerable distance from England, the air requirements of the two countries become more nearly the same. The war needs of this latter condition bear a considerable part in the present determined efforts in Great Britain to give back to the British Navy the complete control of its air arm. It was not long before the British Navy became fully aware of the vital importance in all future wars of the command of the air. It was borne home painfully that the organization as developed under the Royal Air Force could not give the navy complete war efficiency and readiness in this respect.

The struggles of the British Navy to regain control of its air arm has continued until the present time. A number of concessions have been forced from the air ministry; and it is believed that in the near future public opinion in Great Britain will force the giving back to the navy the air services which it considers it should have.

By 1922 the conditions in cooperation between the navy and Royal Air Force had become so unsatisfactory that a subcommittee of the Committee of Imperial Defense was appointed to go into the general subject of "relations between the navy and the air force." The report of this committee is known as the Weir Report and was submitted on July 21, 1923. The committee made certain recommendations that had the general nature of proposing more extensive exchange of officers between the staffs of the two services, with an increased assignment of naval officers to temporary flying instruction and duties. However, the matter of double commissions in the two services was introduced, a feature which has only added to the general confusion of authority; and the matter of naval air control and direction was left in an unsatisfactory state. Certain minor

concessions were made to the navy; but the main request of the navy, that of air separation, was not acted upon. The report was dominated by Weir, who was formerly in the air ministry, and opposed to the demands of the navy.

In practice the recommendations of the Weir Committee have proved unsatisfactory to the navy and to the Royal Air Force personnel assigned to the navy. Only through good will and give and take on the part of both services have matters gone forward as well as they have in the general business of administration. The fact has become continually more evident that for the purposes of modern war operation the present arrangement is inadequate.

The appreciation that the Navy should have a greater control of its aviation finally resulted in a set of admiralty orders, approved by the Government, and issued in April, 1924. These orders provided that the officer personnel of the Royal Air Force employed in the Fleet Air Arm may be obtained to the extent of 70 per cent from the navy. The periods of service with the Royal Air Force were also defined, as well as the method of promotion, etc. These orders are still in effect, and though they constitute a distinct betterment of the situation from the point of the navy, they still left in an unsatisfactory state the question of superior command, training, and provision of equipment, all essential element in complete navy control. Matters of divided authority and confusion in discipline and administration remain.

Active agitation for the final severance of the Fleet Air Arm from the Royal Air Force continues: and it is expected that when a sufficient naval personnel has been built up to take over naval aviation, complete separation, except in certain elements of supply will take place. The anomaly of a service 70 per cent manned by the navy being directed by another department of government is self-apparent.

The following is a digest of the admiralty orders previously referred to, that appeared in the London Times of April 26, 1924:

FLEET AIR WORK.—NAVY OFFICERS AND THE R. A. F.

NEW ADMIRALTY ORDERS

It has been decided that in future all air observation duties for the fleet, including gunnery, spotting, and air reconaissance, are to be carried out by naval observers. Volunteers are also called for from commissioned officers to be "attached" to the Royal Air Force as pilots, and for other naval air work, for specific periods, and it is hoped that 54 of these latter will be selected to undergo the first course of training at Netheravon, Wilts, opening on May 15.

These are the salient features of two fleet orders issued yesterday by the admiralty in accordance with the arrangements approved by the Government by which, to the extent of 70 per cent, the officer personnel of the R. A. F. employed in the Fleet Air Arm may be provided from the navy. The changes are the outcome of the negotiations which have been in progress since the

report of Lord Balfour's committee on the relations of the navy and the air force in August last. The conclusion of this committee was that there should be a single air service, which was accepted by the Government, "subject to the conditions which are necessary to meet the detailed objections urged by the admiralty."

CONDITIONS OF SERVICE

Officers who volunteer for service in the Fleet Air Arm will be attached to the R. A. F. for certain periods, the duration of which will be decided by the admiralty from time to time. They must be of the actual or relative rank of sublieutenant or lieutenant and not over 28 years of age on July 1, 1924. In the main, they will be of the executive branch, but a small number of (E) officers and royal marine officers who satisfy the conditions as to rank and age are also required. A medical examination is necessary before selection.

The periods at present adopted are approximately as follows: (a) First period (air), four years, including a period of training; (b) second period (general naval service), two years; (c) third period (air), two years for 50 per cent of the officers who have completed (a), the rest to remain in the general naval service; (d) fourth period (air), two years for 60 per cent of the officers who have completed (c), the rest to remain in the general naval service; (e) fifth period (general naval service, or air, as required), for the remainder, if any, of lieutenant commander's time, for all officers who have completed (d).

NAVAL UNIFORMS AND PAY

Naval or marine officers will be granted air force rank during their attachment, the initial rank granted being that of flying officer, and will be eligible for advancement in the Royal Air Force irrespective of their rank in the royal navy. They will continue to wear the uniform of their naval or marine rank, but will wear also a distinguishing badge indicating that they are attached to the R. A. F. for service in the Fleet Air Arm. They will draw their naval full pay, with an allowance of 6s. a day, paid under the general conditions laid down for submarine allowance. During the periods of naval general service, however, when the officers cease to be attached to the R. A. F., the allowance for flying duties will not be payable.

An important change made is that, when embarked during periods of attachment, they will be available for ship duty in addition to flying duty, and in order to emphasize this they will, when appointed to a carrier or other of His Majesty's ships, receive an appointment from the admiralty as well as from the air ministry. They will have the rank, status, and authority of air force officers when engaged in specialist air duties, and naval or marine rank, status, and authority when engaged in general naval duties.

EMPLOYMENT AND PROMOTION

The promotion in the royal navy or royal marines of officers serving in the Fleet Air Arm will be governed by naval or marine regulations, and this service will be considered to be as good toward promotion as if it were performed in any other specialist branch. Officers who have had six or eight years' air experience will be favorably considered for employment in the higher posts in the Fleet Air Arm, both ashore and afloat. An appreciable proportion of officers who receive promotion to commander and above in the royal navy or equivalent rank in the royal marines will be required for attachment to the R. A. F. in higher ranks. In addition, there can be little doubt that, with

the continued development of naval air work, air questions must enter more and more into naval staff problems, and a knowledge of such questions, obtained by actual experience of air duties, must become a very valuable asset for a war staff officer, even if it does not become a necessity.

Special attention may be directed to the fact that officers will not, during any part of their periods of attachment, lose their association with the royal navy. They will continue to wear naval or marine uniforms and, except for the initial training period, will normally be employed on fleet air work. No naval or marine officer attached to the R. A. F. is to be appointed to a nonnaval unit without the express consent of the admiralty, given only in exceptional cases, and then only if the officer is himself willing.

CONDITIONS FOR OBSERVERS

Naval observer officers will not be "attached" to the royal air force, as in the case of the naval officers to be employed as pilots and on other naval air work, and their pay and conditions of service will continue on the same lines as at present, with the exception that, whereas naval observers have hitherto been employed on air "spotting" duties only, and air reconnaissance duties have been performed by R. A. F. officers, in future there will be only one type of observer, who will be a naval officer trained in gunnery, spotting, and air reconnaissance work, either of which duties he will be qualified to perform and may be called upon to carry out as he may be directed. These new arrangements will probably necessitate some slight modification, and possibly extension, of the observers' course held at Portsmouth. The question of what further training, if any, will be required to be given to the existing naval observers in order to qualify them fully for the combined duties referred to is under consideration.

A comment on the admiralty orders appeared in the Hampshire Telegraph and Post of May 2, 1924, as follows:

THE FLEET'S AIR ARM—NAVAL AIR WING. ROYAL AIR FORCE

The decision to recruit from the navy up to 70 per cent of the officer personnel of the fleet's air arm is significant. In agreeing to this the Government have gone a long way toward conceding what the admiralty wants, and the ultimate step of reconstituting a separate air service for the navy will now be easy to take. Nor can it be forever delayed. With 70 per cent of the pilots and all of the observers naval officers, the air arm becomes virtually a naval service. And the manner in which the terms of service for those who volunteer for this branch have been arranged gives clear indication that the admiralty are looking forward to the time when this section of fleet work will pass wholly within their control. As a considerable number of the R. A. F. officers now doing duty in the coastal area, the division of the royal air force that works with the navy are ex-naval men, it follows that when the 70 per cent of new strength is added, this part of the R. A. F. will be staffed almost wholly from the senior service. In the face of that it is absurd that it should be under the administrative charge of landmen whose practical knowledge of sea air work can not be very great. Naval personnel is being provided for naval duties because experience has shown that no other kind is efficient, especially for observing.

It is believed that the feeling of the British navy in the matter of controlling its own air arm may be gathered from the expressions of opinion from various sources included below.

THE NAVY AND THE AIR

Summary of letter to the Morning Post Saturday, August 5, 1922, by Lord Sydenham

Lord Sydenham, who was a member of the air board in 1916-17, states that he was an advocate of the control of the air force by a separate ministry, but changed conditions compelled him to revise the opinions which he had reached as a member of the first air board. He is now convinced that it is vital to the national security that the admiralty should raise, train, and administer a branch that has become an integral part of the fleet. What the navy needs, and what the royal air force can not supply, are seamen who can fly. The pilots training in the management of machines is only the alphabet of the naval airman's education. He can only learn the rest at sea by permanent incorporation in the royal navy. The air war staff practically dictates on the most vital and important parts of the whole policy of imperial defence, and it can not possibly be fitted to carry out a duty of that kind. The naval war staff alone can determine the air requirements of the navy, and consequently, full power must be given where alone adequate knowledge is to be found.

If, as is possible, the surface navy may increasingly be forced to take to the air, this evolution can only take place under the leadership of the admiralty, which alone can apportion the naval requirements in these respects. The intervention of an outside department of state in a matter of this kind must be disastrous. He does not propose the abolition of the air ministry, but he would allot to it definite functions within its capacity.

Statement of Lord Lee, first lord of the admiralty, to members of the "1920 Club," July 6, 1922

NAVY VERSUS AIR SERVICE—CONTROVERSY

"And here," he continued, "I am most anxious not to be misunderstood. I am not referring to the legitimate and long-overdue development of the air service—and I think my own record is clear in this matter, for I have always been an enthusiast for the development of the air service—but I am referring to those wild and reckless statements which have become the occasion for journalistic stunts, and which are pervading a section of the press to-day, based on no scientific fact, but merely on a desire to be sensational. It is certain that the admiralty and the navy are not opposed to the development of the air service, but they are crying out for it because the air service to the fleet has become quite as vital as the torpedo. We can not be accused of trying to hold back, but the navy must have control over its air service. The air service is as much a portion of the fleet and should be as much under its direct control as the gun or the torpedo. The only complaint the admiralty have to make against the air service is that, first, it is not developing fast enough, and, secondly, it is not under the control of the fleet. The air service should not be developed at the cost of the proved and tried weapon upon which we have had to rely in the past, and upon which we shall have to continue to rely."

Extract from Admiral Lord Beatty's speech at Guildhall, London, November 9, 1923, as quoted in London Times, November 10, 1923

'Then we come to the question of air attack on the capital ship, and the means for countering and defeating it. The improvement in armour protec-

tion against the gun is effective against the bomb, and the underwater protection against the torpedo is equally effective against aircraft bombs bursting close alongside a ship. Antiaircraft fire has made great strides, and we should be able to rely on our own fleet aircraft for counterattack. The decision that capital ships can be equipped to withstand all these forms of attack has not been reached without the most careful investigation or without giving every consideration to the points which have been urged against it by those who hold that the day of the large surface ships is past. The decision is based upon experiment and exhaustive trial, fortified by the best naval opinion available, and the advice of all officers who have held important command within the last 10 years, the period during which the new menaces have developed. Naval constructors corroborate the naval opinion, and their views are in turn confirmed by the decisions reached in the United States and Japan.

The capital ship—that is to say, the most powerful ship afloat—is the basis of sea power; it is the unit upon the support of which depends the freedom of action of every less powerful type of craft; it is a match for any ship or weapon that can be brought against it. In the distant past the capital ship was the trireme; to-day it is the battleship; to-morrow it may be something different; something that can fly, dive, or perform other evolutions which to-day seem impossible.

To turn again to the air. Nowhere is the importance of this arm more fully recognized than in the navy. It is not too much to say that in the future no fleet, no ship, will be fully equipped without aircraft. They are becoming an additional indispensable weapon of the fleet, as indispensable as guns or torpedoes, and as much a part of a ship's equipment. To command a fleet in the future an officer's knowledge of the value and use of aircraft must be as intimate as his knowledge of the value and use of gun, torpedo, and submarine. The airplane has definite functions in the gunnery organization of each ship. It may well be that the commander in chief and his staff will be quartered on board an aircraft carrier. During operations staff officers in airplanes, far in advance of the fleet, should be able to give information enabling him to dispose his forces to the best strategic and tactical advantage. Victory may well depend upon this.

It must be remembered that shore-based aircraft can function only in comparatively narrow waters. The great oceans which carry our trade and communications are as free from their influences as ever. As in the case of the submarine, it is only the power which commands the sea that can secure the full use and freedom of action of aircraft borne in aircraft carriers and in other vessels of the fleet. It is, therefore, imperative that the air arm of the navy should be developed, unhampered, side by side with the gunnery arm, the torpedo arm, and the other arms which go to make up the efficiency of the fleet, and that a proper proportion of the personnel of the navy should be devoted to its development, as is the case with the other arms.

Resolution of British Navy League, May 8, 1924

The agenda contained a resolution declaring that the meeting was of opinion that in order to develop the maximum power and efficiency of the fleet the control of and responsibility for the fleet air arm should be in the hands of the admiralty, and it was glad to note that a move had been made in that direction.

The president said that when the resolution was suggested he had approached the admiralty with the view to finding out whether that department would approve of such a resolution, and the first lord of the admiralty had sent him the following letter:

"MY DEAR SUTHERLAND: At the present moment most amicable conversations are going on between the admiralty and the air ministry on the subject of the fleet air arm, and I have every hope that these conversations will result in arrangements which will be satisfactory to both departments. In these circumstances I would deprecate anything which might result in a renewal of old controversies. It may be said that this resolution only emphasizes a cardinal principle in naval policy, but personally I believe in the aphorism 'the least said the soonest mended,' and from the point of view of the admiralty, I should prefer that the subject should not be raised.

"Sincerely yours,

"CHELMSFORD"

After receiving that letter, the president added, he approached the executive committee and suggested that, on the whole, it might be wiser not to move the resolution; but the executive and the chairman, quite rightly, were of opinion that, from the league point of view, such a resolution would do no harm and should be moved. (Cheers.)

Vice-Admiral Sir Laurence Power then moved the resolution. He said they were informed that a compromise has been arrived at. He was against dual control, and compromise could be nothing but an embarrassment in time of war.

The resolution was unanimously carried.

A FLEET AIR ARM

(a)

Its functions and personnel

(Morning Post, August 20, 1924.)

Of late we have been asked to believe that an atmosphere of complacency good humor and brotherly love has settled down over the Admiralty and air ministry, and that the "compromise" effected by the Weir Report in the matter of the navy's air service is working to the satisfaction of all. This may suit political quarters more bent on grinding the parliamentary machine than giving ear to questions of imperial defense, but it does not represent the true situation. The admiralty, in a loyal endeavor to carry out a grotesque scheme, has had to issue a series of orders to the fleet, which can only render confusion worse confounded. This aspect of the subject will be dealt with in due course, but it is desirable, first of all, to set forth clearly what are the functions which the Fleet Air Arm must fulfill.

For simplicity, we may classify service air work generally under three main headings: (1) Fighting in the air; (2) attacks from the air; (3) observation from the air.

FIGHTING IN THE AIR

Air fighting is now a highly developed form of warfare, demanding exceptional skill, courage, and endurance on the part of the personnel, and specially designed aircraft with great mobility in any plane (high performance) and capable of developing intensive machine-gun fire. The large armored aircraft with an all-round armament may become the battle plane of the future, comparable to the battleship of the sea, but it appears likely that for the present the brunt of the fighting in the air will continue to fall on "light craft."

On the latter, too, must devolve the responsibility for defending from the enemy's fighters the larger and less mobile aircraft, engaged in war from the air and in observation duties, where such protection is necessary. The revival of airships, too, is likely to add to the necessity for airplane escorts capable of providing an offensive defensive.

The essential features of "war in the air" are common to the air over the land and the air over the sea. So long as we maintain a separate air force, therefore, it seems logical to regard that service as the proper one to develop this arm of the fighting forces. This does not mean that the air arms of the other two services are not to be versed in fighting in the air, but a central school of air fighting should be the definite charge of the staff and flying experts of the Royal Air Force. Naval, and perhaps military, airplane pilots would go there for a course in this specialist work, just as Royal Air Force pilots at present go to naval aircraft carriers to learn air seamanship. Until the Fleet Air Arm is fully developed, moreover, it appears desirable that "fighter" airplanes working with aircraft employed on purely naval duties should continue to be manned by the Royal Air Force. At the same time, naval pilots must be taught air fighting in the defensive form in which they have to engage in it while flying their special aircraft.

So far there is no great complexity in the situation or diversity of claims. Now, however, let us examine the other forms of air work.

ATTACKS FROM THE AIR

The attack of objects on the ground level is an entirely different form of air warfare from that of fighting between aircraft in the air. Three weapons are employed, the bomb, the machine gun, and, for sea work, the torpedo. The function of the airplane is to provide a rapid means of transport for these weapons and a platform from which to aim and fire them.

Aerial bombardment is a means of attack which, at first sight, would seem to be the same in principle whether directed against targets on land or those at sea. There are, in practice, many points of similarity between naval and military gunnery. Furthermore, the airplane, from which the attack is made, is a common bond, whereas the difference between a ship and a shore platform introduces separate problems in sea and land artillery.

It is the matter of distinguishing targets and in the methods of attacking them that aerial bombardment of objects at sea differs from that directed against those on shore. The land-trained pilot is used to recognizing from the air objects with which he is familiar in every-day life, such as roads, fields, railway bridges, factories, etc. He learns to navigate by map, to observe landmarks, and to identify objects such as military establishments, lines of communication, and troops. This is his business in life, even as it is that of the seaman to recognize buoys, beacons, and landing lights, and of the sea-trained pilot to distinguish between the different classes of warships, and between men-of-war and merchant vessels, and to navigate when out of sight of land.

Sea and land targets

One might go further in the analysis of the land-pilot's duties and distinguish between the bomber, who sets off a clearly defined objective, far from the scene of action of contending armies, and one who must work in the closest cooperation with troops in movement. The first, doubtless, needs air knowledge to find his objective and to counter enemy air attacks; the latter also needs military knowledge and experience if he is not to be a danger to his own side. The need for specialist knowledge is intensified greatly in the case of

aerial bombardments at sea. Ships are less easy to locate than shore objects which can be pin pointed on a map. It requires a seaman's eye to distinguish between a battleship and a battle cruiser, a light cruiser squadron and a flotilla of destroyers, a friendly convoy and an enemy's fleet. To the sea-trained pilot such objects are as familiar as factories, churches, railways, and armies are to the land-trained man.

When we come to examine the technical aspect, air attack at sea involves problems of hitting a rapidly moving and elusive target like a ship under way, of penetrating armor, or of dropping bombs close alongside the ship with a delay-action fuse to give the effect of a mine exploding under water. All these matters are closely allied to other problems of naval warfare which are being continually studied by the technical branches of the sea service. It is obvious, therefore, that aerial bombardment at sea should be the business of the Fleet Air Arm and that it should form an essential part of the training of the naval officer pilot, while the bombing of objects on land should remain part of the functions of the R. A. F., possibly with a specialized army wing for close cooperation with troops.

Machine-gun fire from aircraft is not a very formidable danger to warships, although it might do a good deal of damage to any personnel surprised in exposed positions. It is probable that it will only be used in conjunction with other forms of air attack, such as low bombing or when firing torpedoes at close range, when it might disorganize antiaircraft gunfire to some extent. The necessary training could probably be acquired by naval pilots while undergoing their "air-fighting" course.

Torpedo air service

Torpedo aircraft are at present entirely in the hands of the Royal Air Force. This is peculiarly incongruous, for the torpedo is essentially a weapon of which the navy has very many years' experience.

The navy, too, is used to firing torpedoes from high-speed craft like destroyers and coastal motor boats, and realizes the difficulties and dangers involved in distinguishing friend from foe, especially when attacking at night, under cover of a smoke screen by day, or in conditions of low visibility.

It is not too much to say that unless the personnel of torpedo aircraft is made purely naval and unless they are all under naval command, they are liable to become a serious menace to our fleet and shipping in time of war. This is no reflection on a section of the Royal Air Force, which has done much to develop this form of attack, but it is the inevitable result of a muddle-headed system which puts square men in round holes.

Observation from the air includes a variety of duties of vital importance to the older services and inseparable from our sea security. This will be dealt with in the next article.

A FLEET AIR ARM

(b)

Observation and commerce protection

(London Morning Post, August 25, 1924)

In the first article of this series, published in the Morning Post of August 20, "Fighting in the Air," and "Attacks From the Air," were discussed, and certain essentially naval aspects of the latter were described. Now, under the heading of "Observation," it is proposed to deal with the various forms of air services

which give "vision" to and which provide information for sea and land commands in war.

First in order of these services is reconnaissance, for tactics and even strategy are dependent on up-to-date and accurate information of the enemy's preparations, positions, forces, and movements. Much of these can not be concealed from the bird's-eye view of the observer in the air. But to see is not enough. The observer must have the training, the knowledge, and the intuition to interpret what he sees if his report is to be of value.

Here, again, air work over the sea differs from that over the land. Essential differences in distinguishing objects on land and those at sea have already been remarked on in discussing attacks from the air, but the need for specialist knowledge is further intensified in the case of officers employed on air-observation duties. It is not enough to be able to distinguish troops from crowds, arsenals from biscuit factories, battleships from liners, or submarines from buoys.

Observers' duties

The observer will often have to pick out just those important features in the panorama spread out beneath him which will enable the enemy's concentrations or intended movements to be forecasted, and he alone may be in a position to interpret them instantly and to send the vital message which will enable a commander in chief to seize the golden opportunity for victory. It is a heavy responsibility for young shoulders to bear, and how it is fulfilled must depend on training and the instinctive knowledge which springs from early associations. In the near future we may expect to see air observers as some of the most trusted members of a commander in chief's staff.

The fascinating proposition of a commander conducting operations from an airplane can not be discussed in this article, but it is well to keep in view two practical aspects of the subject. There are strong objections to the officer directing sea or land movements being distracted by becoming involved in a conflict in the air. Again, the command of a fleet or army, under modern conditions, necessitates a very large organization for sending and receiving messages. It can not function through the medium of a single wireless telephone or signaling installation.

To revert to the specialist nature of air observation as applied to sea warfare, the naval air observer is not merely in the position of the old-time officer who climbed to the masthead of the flagship to give his admiral the earliest news of the enemy. His duties in the next war will be far more extensive.

Four functions

If we examine the subject in greater detail we find that there are really four distinct forms of sea air observation work:

1. Air intelligence, aided by aerial photography.
2. Fleet work—reconnaissance of the enemy's forces, reports of his movements, and spotting for gunfire.
3. Escort of shipping in narrow waters and in the approaches to our ports.
4. Patrol of or reconnaissance over the ocean routes.

Every one of these is part and parcel of the whole business of the admiralty.

Air intelligence work for the navy must be done as and when required for particular operations, and by naval or royal marine officers well versed in its characteristics and closely associated with the command and staff concerned. To borrow an airplane with a photographer when occasion arises will not meet the case in any way.

At present the navy has no means of its own for obtaining intelligence by air other than the aircraft in carriers, which will be fully occupied with fleet duties. The need for such a service was fully demonstrated during the Belgian coast and Dardanelles operations in the late war. In the former, at any rate, the requirements were met by an organization which grew out of the old R. N. A. S., and which really functioned as part of the local naval command, though outwardly changed to an R. A. F. organization when that service was created.

Fleet work is being slowly catered for, and the whole of the air observation for the fleet will in future be done by naval officers; but even this series is far from being on a satisfactory basis, yet as will be shown in a later article.

Air defense of shipping

The escort of shipping by aircraft proved, under suitable conditions, to be one of the most effective forms of defense against submarine attack in the late war. The Washington treaty reaffirmed international prohibition of this form of warfare, but we may well remember that agreements made with pious resolution in peace do not always stand the strain of war; moreover, a new menace, which has not been legislated for, has arisen with the advent of the torpedo-carrying airplane.

It is futile to suppose that our shipping would be immune from the latter form of attack, particularly in the case of a continental enemy, simply because it is not possible for aircraft to conform to international conventions and to examine a vessel and transfer her crew to a place of safety before sinking her.

The escort and protection of shipping at sea is the definite charge of the admiralty. They can not delegate it, in part, to some other service; yet the navy has not even the nucleus of an organization for dealing with a menace which might threaten the life of the nation. In case of war with a continental power, the whole of the energies and resources of the air staff would be centered on the air defense of this country, and the air defense of shipping would probably be thrown on an admiralty all unprepared.

This form of commerce protection can not be divorced from other measures, such as routing, the sailing of convoys, surface escorts, minesweeping, etc., all of which must be coordinated by the admiralty. Moreover, the personnel for such sea-air work will have to be largely recruited from just the class which displayed such aptitude for things maritime by their work in fast auxiliary craft in the late war.

Ocean air work

Lastly, there is the protection of commerce on the ocean highways. Here the deep-sea sailor must play his part, whether in permanent cruiser squadrons or in temporarily-commissioned armed merchant cruisers, or in commercial airships taken over by the admiralty on outbreak of war. The duties of the two former are well established. The airship has yet to justify itself as a naval unit, but it has been officially stated that the Government is again building airships, because of their potential value for naval work in war.

It is doubtful whether they can be used in narrow waters within range of enemy airplane bases, but if they fulfill expectations they will be valuable allies to our commerce protecting forces on the high seas. As such they must be under admiralty control, and their personnel must be naval in character.

Of these four essential sea-air services that immediately connected with the main fleet alone has received appreciable attention. A "coastal area" of the Royal Air Force nibbles at the long-shore air work, but, even so, it is the Cinderella of that service. None of these problems is really the province of

an air ministry; yet the admiralty is unable to make provisions for services which are vital to our sea security. The navy knows and understands what is required, but remains half fledged, unable to take to the air over the sea which it is supposed to rule.

A FLEET AIR ARM

(Morning Post, August 29, 1924)

(c) The present Zilbertain position

In two previous articles in the Morning Post of August 20 and 25, the duties which a Fleet Air Arm might be called upon to perform in war were examined in some detail.

It was seen that these include:

1. Fleet air work—reconnaissance of the enemy's forces, reports of his movements, and spotting for gunfire.
2. Air intelligence (for the navy).
3. The attacking of enemy warships by bombs and torpedoes, launched from airplanes.
4. Air escort of shipping in narrow waters and in the approaches to our ports.
5. Airship patrol of or reconnaissance over the ocean routes.

Every one of these duties, it was shown, was essentially the business of the admiralty and required a naval personnel, or at least a personnel with maritime experience and a course of naval, as well as flying, training, if they were to be efficiently performed.

What is the present situation: how does the machinery of state function to provide these essential services for imperial and national defense?

If the most fanciful writer had sat down to evolve an extravagant nautical farce he would have been hard put to it to rival the existing state of affairs in the so-called Fleet Air Arm. This hermaphrodite service, moreover, is only designed to fulfill one of the five functions just enumerated, the remainder are either in a state of nebulous uncertainty or completely nonexistent.

An unprofessional committee

It will be recalled that just a year ago a special committee sat to investigate the claims of the admiralty that the navy should have its own air service. The chairman of that committee was Lord Balfour, but he was seriously ill throughout nearly all its sittings, and the predominating member was Lord Weir, onetime political head of the air industry. This committee was wholly unprofessional in its constitution and its report is clear evidence that the true nature of the issues at stake was not understood by its members. The main object which seemed to inspire its findings and recommendations was that of preserving intact the trade unionism of flying as represented by the air ministry.

The main committee of imperial defense, of which the professional heads of the fighting services were not then permanent members, were at this time being pressed for a report in order that the Government might make a statement in Parliament before the summer vacation. It hurriedly accepted the subcommittee's recommendations and forwarded them with a covering report, which was, unconsciously, a masterly summary of the confusions and muddles inseparable from the scheme. The Government, still more hastily, accepted both reports, washed their hands of the whole matter, and prepared for a general election.

So we find it approved in principle that 70 per cent of the flying personnel of the Fleet Air Arm and all the observers shall in future be naval officers. This sounds well enough for a start, but the Fleet Air Arm remains under the air ministry, and the naval personnel is attached to the Royal Air Force, while serving in what does duty for the navy's air service.

The admiralty must apply to the air ministry for the essential air services of the fleet, and if they are not forthcoming My Lords must appeal to the Government once again and go through the laborious process of a subcommittee of inquiry, and the main committee of the committee of imperial defense and "cabinet consideration," before the navy can carry out its functions in war. Truly, we invite disaster by our methods.

The hermaphrodites

The position of the naval officer attached to the Royal Air Force for duty in the Fleet Air Arms was "explained" by the original main committee in the summary alluded to. It includes the following:

"For example, he continues to be under the tactical and disciplinary orders at sea of an officer of the service to which he permanently belongs, while he is serving under the immediate command of an officer of the service to which he is temporarily attached," and again, "But while after their training under the air service they will be posted to units of the navy by the air service on the nomination of the admiralty and will serve under the immediate command of air service officers, yet afloat they will be under the ultimate command of the naval officers of the fleet."

There is more of it, but these are the gems of lucidity.

A recent admiralty order announces that naval or marine officers granted air force rank during attachment are to be given temporary R. A. F. commissions in order to define their status and authority under air force law. Such commissions are not in any way to affect their naval or marine status of authority. So we find: "Attached naval officers will invariably be addressed by their naval titles, and if their naval rank is relatively higher than their air force rank they will take precedence (but not command) among air force officers in accordance with the naval rank." There seem to be the makings of some nice distinctions between etiquette and discipline here. An officer who takes "precedence but not command" will presumably have the satisfaction of going into dinner or returning from a funeral in front of an officer who is his superior on the parade ground.

Dual rank and status

But this is not all. The position of these officers when embarked is defined in yet another admiralty order, which says:

"They will have the rank and status and authority of their air force rank when they are engaged in specialist air duties; at other times, when they are engaged in general naval duties, they will have their naval or R. M. rank, status, and authority."

Lastly, the regulations permit of their "advancement in the Royal Air Force under R. A. F. regulations, irrespective of rank in the Royal Navy or Royal Marines, and such advancement will be determined by the air ministry in consultation with the admiralty.

After reading these definitions and instructions, one can only imagine a cross-eyed and distracted lunatic debating with himself whether he ought to obey a "tactical and disciplinary" order of his naval commander or the "immediate command" of his air force superior, or whether, in his air force ca-

capacity, he is senior to the former and in his naval capacity to the latter, and therefore, can take precedence of both, and if he does so whether he will lose his naval commission in the air force or his air force commission in the navy, and, if so, what will be his "ultimate" end?

In practice, of course, the right type of officer, whether naval or air force, "gets on with the work" and ignores the imbecilities of the system, but it is not war; it is not even a safe and logical foundation on which to build a vital measure of defense in war. And the whole child-like business is to save the face of the air ministry and preserve the trade union of "flying."

Sea duties—Air command

Not only are 70 per cent of the flying personnel and all the observers of the Fleet Air Arm henceforth to be drawn from the navy, but a third order issued by the admiralty notifies the immediate replacement of a considerable part of the R. A. F. personnel, hitherto embarked in aircraft carriers, by certain specialist naval and royal marine lower-deck ratings.

The imperative necessity for building up an air arm for the navy and manned by the navy has therefore been clearly proved.

There can be no further excuse for forcing these officers and men to serve in a different service.

Those who sit in high places do not appear to realize in the least how this state of affairs is disliked and mistrusted in the fleet. The admiralty and commands afloat are doing their utmost to get the right type of young naval officer to come forward under the scheme, but there is marked disinclination to embark on a career where in attempting to serve two masters an officer is so liable to lose favor with both.

Now the navy could and should be equipped with its own air branch, including four classes of sea-air work for which the Fleet Air Arm does not provide, will be dealt with in the next article.

A FLEET AIR ARM

(d)

Reformation at the top

London Morning Post, September 9, 1924

In previous articles, in the Morning Post of August 20, 25, and 30, the duties of a Fleet Air Arm were outlined and the present absurd and inadequate system described.

Of the five classifications of sea-air work, it was seen that only fleet work had received serious attention. This fleet air work is in future to be performed mainly by naval ranks and ratings, but they will be under dual naval and air force command, even when embarked afloat, and the naval officers belonging to this Fleet Air Arm will actually hold two commissions, their proper one in the navy and a temporary one in the air force.

The remaining four naval air duties are entirely unprovided for, so far as any facilities the admiralty may possess are concerned. These duties include:

1. Air intelligence (for the navy).
2. Air attack of enemy warships.
3. Air escort of shipping in narrow waters and in the approaches to our ports.
4. Airship patrol of or reconnaissances over ocean routes.

United States naval air service

Before discussing an organization to meet all these needs it will be helpful to see what has lately been done in the United States to apportion responsibility in air matters. Our American cousins have for long been remarkably clear sighted in their air policy. It is true that the issue, in their case, is not confused by a continental air menace and a third service, but one result of the policy is that their Navy is organized for war with a proper air branch of its own, while ours is not.

The Joint Army and Navy Board, a sort of professional committee of imperial defense, has recently reexamined the whole position, and in consequence the War and Navy Departments have issued new instructions defining "Army and Navy Air Policy."

United State Army war aircraft are designated Army, Navy, and Marine. The Marine aircraft perform the functions normally assigned to Army aircraft when the operations are in connection with an advance base. Army aircraft operate from bases on shore (*a*) as an arm of the mobile army; (*b*) against enemy aircraft in defense of all shore establishments; (*c*) alone or in cooperation with other arms of the Army or with the Navy against attacks on or close in to the coast.

United States Navy aircraft operates from the fleet and from mobile bases, or from naval air stations ashore in cooperation with the fleet (*a*) as an arm of the fleet; (*b*) for oversea scouting; (*c*) against enemy establishments on shore, when such operations are undertaken in cooperation with warships or alone; (*d*) to protect coastal sea communications by reconnaissance and patrol of coastal sea areas, attacks on enemy submarines, aircraft, or surface vessels engaged in trade prevention or in passage through the sea areas; (*e*) in cooperation with the Army against enemy vessels engaged in attacks on the coast.

The regulations governing command in coast defense are further defined, and, as in the case of the sea and land forces, this is based on the principle of the "predominant partner." It is the part of the organization most open to criticism, but in other respects it is a pattern of lucidity and completeness compared to the muddled condition and omissions of our own. It will be noted that the four services unprovided for in our naval air work are specifically included in the United States air policy and assigned to the Navy Department. The head of the United States Naval Air Service is an admiral, and this appointment is the foundation of an efficient system.

Naval air command

If the British fleet is to be properly equipped for battle, if our seaborne commerce is to be safe in war, the navy's air service must be properly organized from the top. Until this is done there can be no clear policy, essential needs will not be catered for, and the personnel will lack proper guidance and leadership.

Air force command and naval command exercising dual control can not produce efficiency. In naval air affairs there should be but one authority—the naval one.

The admiralty will be untrue to its trust if it allows this vital issue to remain in abeyance.

Assertions have been made that the navy is "not ready" to take over its own air services yet because there are no senior naval officers with the necessary air experience. This line of argument is based on two fallacies, ignorance of the facts and the undue importance attached to the technicalities of flying.

To start with, a number of flag officers have paid considerable attention to naval air work of late. Notable among these is the late commander in chief of the Atlantic Fleet, who, when the staff of the Grand Fleet sold the pass and agreed to the surrender of the naval air service, never ceased to urge its retention and restoration.

Such advances as has been made in fleet air work has been chiefly due to the keenness of the late Atlantic command and the loyal cooperation of the R. A. F. personnel in the attached aircraft carriers. A number of younger flag officers have of late taken a close personal interest in the subject and have not been content to study it from the plane of an office desk.

A valuable nucleus for the higher naval air commands exists in the captains who are commanding and who have commanded aircraft carriers. Most of these officers by now possess exceptional knowledge of fleet air work, certainly far more than R. A. F. commanders of shore air stations, who, nevertheless, are in charge of units intended for naval duties.

Sources of supply

A further source of supply for such commands exists in naval officers who actually had charge of air units during the war, but who declined to leave their own service, only to find their career in the senior ranks cut short by the "Geddes axe." These officers combine with their active service experience of air work a life training in naval requirements and the command of officers and men of their own service.

With an eye to the future, my lords have already arranged with the air ministry for a few commanders R. N. to be lent to the royal air force to obtain practical experience. This, it is officially announced, is "with a view to assisting the permeation of the higher ranks of the navy with some knowledge of air matters." This is all to the good, but it is to be sincerely hoped that our sea security will not remain in jeopardy for some five years or more while these officers slowly attain the rank and seniority for flag and captain's commands.

The fallacy that a commander of a specialist branch must be a specialist himself is an old one. The necessity is disproved by the fact that by no means all of the senior officers in the royal air force are expert pilots. In the navy, for example, also it has been no uncommon thing for a captain who was a torpedo expert to be appointed to command the chief gunnery school at Whale Island. Many important posts on the naval staff have been ably filled by officers without any special staff training.

A specialist trained for command of a specialist branch is often desirable, but the principal need is that the commander should have wide experience of his own service and be able to direct the efforts and teachings of the specialist into practical channels, where they will conform to sound doctrines and blend with the other ingredients which go to make success in war. The specialist, with a narrow outlook even in his own service, is liable to run riot.

An air specialist wholly out of touch with the sea and the navy can not be a fit commander to develop the latter's air services.

In practice, therefore, there would be no great shortage of naval officers of sufficient standing and suitable qualifications to full commands and put the navy's air service on its legs. There is a far greater scope for selection now than there was in the early days of the war, when the old R. N. A. S. was being built up. That service was wrongly used and driven out of the fleet by Mr. Winston Churchill, instead of the fleet being consistently permeated with air knowledge, as it would have been by an enlightened board of admiralty.

Nevertheless, the flying record of the R. N. A. S. was a particularly brilliant one, and some of its most distinguished commanders came from the active service ranks of the navy.

A royal naval air reserve

In dealing with the junior ranks, the navy's air service must be placed in two categories, just as the result of the fleet is, e. g., on active service air branch, manned by volunteers from the fleet, and the reserve branch, manned by an air branch of the royal naval reserve and royal naval volunteer reserve.

The active service branch is already in the making, but enthusiasm lags, and the cause is not far to seek. Officers on the threshold of their careers do not gladly adventure in another service and under commanders who will have no interest in them at the end of a few years.

The royal naval air reserve is a big subject which must be reserved for a future article, but the time has come when the creation of such a force must be regarded as an urgent measure of national insurance and an integral part of our naval defense.

NAVAL AIR SERVICE

(Editorial, London Morning Post, December 4, 1924)

The secretary of state for air, who yesterday gave an interview to representatives of the press, declined to make any statement with regard to the extremely important question of the control and manning by the royal navy of its own aerial arm. Sir Samuel Hoare very reasonably urged that it was too soon after the change of Government to give the desired information. It may be hoped that the experience gained of the present system during the interval which has elapsed since Sir Samuel Hoare was minister for air under a previous administration will convince the Government of the need for reform. More than a year has elapsed since the subcommittee of the committee of imperial defense recommended a compromise under which the naval air force should be subject to dual control. Naval officers serving as pilots are given a second commission in the Royal Air Force, to which they are thus "attached," naval ranks and ratings serving in a naval aircraft carrier are, of course, under the command of the captain of the ship, and at the same time they are also under the command of the senior air force officer on board. But the naval officer serving as an observer is not attached to the Royal Air Force. We do not attempt to explain a position which is only made possible by the loyalty and good feeling of both services. At the same time, the committee of imperial defense in its report virtually admitted the claim of the navy, for in its scheme it is provided that 70 per cent of the pilots of naval airplanes, and all observers shall be naval officers, and that for naval work naval ratings shall gradually replace air force men in wireless and ground duties.

It would therefore appear that Sir Samuel Hoare has only to take one more decisive step and transfer to the royal navy the administration and control of the naval aerial arm, which is already naval in nearly every other respect, to accomplish the requisite reform. The necessity for employing naval officers versed in that knowledge of the sea which only a life's training can confer and educated under naval discipline has already been recognized. Rightly to fulfill the duties of reconnaissance at sea, the experience, judgment, and accuracy of observation possessed by a naval officer are essential. With the best will in the world, a pilot or an observer trained in another service may mistake a cruiser for a battleship, and may fail to recognize buoys and sea marks. In

any case, the system of dual control is indefensible. According to Sir Samuel Hoare's interesting statement, it would appear, further, that the air ministry is extensively occupied in developing new air routes for civil purposes. At the same time, the ministry in increasing the home defense force, which at present is notoriously inadequate. It is probable that in the course of events the Government will perceive that in the maintenance of a sufficient home defense force, and in the encouragement of civil air communication, the air ministry will find its full and proper scope, allocating to the navy and to the army their own forces.

Letter of naval attaché, October 17, 1924

AMERICAN EMBASSY, OFFICE OF THE ATTACHÉ, LONDON

Subject—United air service

1. The control of service aviation in England until April 1, 1918, was along somewhat the same lines as that now existing in the United States. On that date the Royal Air Force was created and all service aviation was placed under its control. Upon the development of a real civil aviation after the war those activities were also placed under the general control of the air force. Under the organization of the air force there is a command known as coastal area, and under this command come all air force activities connected with the navy.

2. Ever since the air force was created there has been a controversy as to the soundness of the principle, particularly of the feature of naval aviation being under the air force. This controversy has waxed and waned more or less periodically. Various committees have been appointed to investigate and make recommendations particularly in regard to the amount of control the navy should exercise over aviation with the navy, but in most cases the personnel of these committees has been such that their reports were subject to attacks on the grounds of partisanship. A committee was appointed by the McDonald Government, but the findings of that committee have not been announced, and it is believed that it is still deliberating. Lord Thomson, minister for air under the McDonald Government, is a member of the committee and has intimated to an officer of this office that he expects to control its decision. As Lord Thomson is strongly in favor of the present system, it is not believed that the present committee will recommend any radical changes.

3. In the course of the controversy many arguments both for and against a united air service have been set forth. As most of these arguments have been expounded by partisans they have been so framed as to make the best case possible, and are subject consequently to criticism on the grounds of incomplete statement of case and inaccurate statistics, etc. An attempt will be made in this letter to set forth as many of these arguments as can be collected from files and from memory, and to comment on these arguments wherever such comment would appear to clarify the situation.

4. The following arguments have been put forward in favor of preserving the status quo:

(a) The creation of the air force was brought about by conditions which arose during stress of war, was the logical solution of the difficulties of these conditions, and will therefore be the best organization of the air forces for any future war.

(b) The location of England, close to other powerful countries which are commercial and political rivals and therefore potential enemies, and the development of aviation resulting in the breaking down of former natural barriers

against invasion, makes it necessary that air defense be of primary importance, and such defense is best accomplished with a single organization capable of using all of its forces in any direction.

(c) The technical talent is limited, and best results in design are accomplished by concentration of that talent.

(d) A single organization results in economy, as it reduces overhead of administration, and reduces cost of experimentation and development by cutting out duplication.

(e) A single organization results in economy, as it centralizes recruiting and training and eliminates duplication of training establishments.

(f) A single organization results in economy, as it tends toward standardization in types of aircraft, equipment, and accessories and reduces the amount of material required to be carried in reserve.

(g) It assures the country of proper air defense, as it provides a cabinet minister for its head whose chief responsibility is maintenance of the air force at its highest possible degree of efficiency. On account of his position he is better able to present the case of the air force to Parliament and to the country and is enabled to secure the necessary financial and political support.

(h) The personnel have a more secure status, especially in the case of officers, as their advancement is controlled by their own officers, officers who have had previous experience in the same duty. They are safe from the feeling that they are prejudicing their future career by service in aviation. They are also free from the dangers which may arise through jealousies of other corps, as they are one corps complete unto themselves. They are protected from being deprived of the fruits of hard work in that there is no chance of senior officers not experienced in aviation being detailed to that duty and given higher posts.

(i) It is claimed that it is no more difficult for an officer of the air force to learn sufficient about the ways of the navy in a given space of time to satisfactorily perform aviation duties with the navy than it is for a naval officer to learn sufficient about aviation in the same time to perform the same duties.

5. The following arguments are put forth by those who are in favor of the navy having absolute control of aviation in the navy:

(A) The conditions which brought about the creation of a separate air force were most unusual. There was a large royal naval air service with very little naval work to do. The Battle of Jutland had been fought, and there appeared little likelihood of another big naval battle. The submarine menace no longer seemed so dangerous. On the other hand, information of the projected German drive had leaked through. It appeared to those controlling the destinies of England that this drive might prove successful, might result in final defeat of the Allies. Every effort was made to be prepared to meet the offensive. It was decided that the air forces operating in France must be greatly strengthened. Most of the units of the R. N. A. S. were capable of assisting and were available, but they were under the navy. Their administration was admittedly inefficient. It was decided that it was vital to put all possible available air forces on the western front under a single head, and the royal air force was created to accomplish this purpose. In other words, it was created under very special conditions which could not exist in times of peace, and which would be unlikely to exist in any war in the near future. (In refutation of pro-air force argument "a.")

(B) In spite of rapid development of aviation the navy is still the nation's main defense and every effort should be made to keep the navy at its greatest

possible efficiency. This can not be done as long as the navy is deprived of control of its aviation. (In refutation of pro-air force argument "b.")

(C) Concentration of talent eliminates the healthy competition which should exist if there were two separate branches of aviation. (In refutation of pro-air force argument "c.")

(D) The economy of the single organization has not been proved. While it is probable that a saving has been effected through the elimination of duplicate designing and inspecting staffs and through the abolition of the situation which brought about competition in purchasing between the two services, there are many things which have added to the expense. A new department of the Government with all its overhead has been established. New schools, hospitals, etc., have been, are being, or must be built. New recruiting agencies have been established. A total larger muster of officers and men are required, for air force officers and men are not qualified to perform naval duties on board ships, nor except in the most elementary way army duties on shore. (In refutation of pro-air force arguments "d" and "e.")

(E) Standardization and consequent economy could be accomplished as well by close coordination of two services. (In partial refutation of pro-air force argument "f.")

(F) The navy has usually secured what it needed in the way of financial and political support and should have no difficulty in taking care of its air service. (In answer to pro-air force argument "g.")

(G) The supporters of the idea of the navy having its own air service generally agree as to the soundness of pro-air force argument "h." They state, however, that this is a situation which usually arises with the creation of a new field of activity in the navy, and that it is cured by time and experience. An example is cited in the case of destroyer service. That service was once regarded as prejudicial to an officer's career, but is now regarded as essential to his career.

(H) Pro-air force argument "i" is usually treated with scorn. It is pointed out that an aviator to be of real use to the navy must have the professional qualifications possessed by the average naval officer, and that these take years of training to acquire. They claim that the average young naval officer makes a good naval aviator as soon as he has been training in flying, aerial combat, and bombing, and that this training can be acquired in six to eight months.

(I) The presence of air force personnel on board ship complicates the internal conduct of the ship. They have different uniforms, different methods of elementary drill, different regulations, and different disciplinary rules. There are not always means by which they can be kept employed, and the consequent idleness is detrimental not only to the air force personnel, but to the personnel of the ship as a whole.

(J) The fact that air force personnel can perform but few ship duties means that they are for the most part supernumeraries. In the case of ships not especially designed to carry or tend aircraft this results in overcrowding of the ship's living facilities. In the case of ships especially designed for carrying or tending aircraft it results in an inordinate amount of space being given up for quarters with a consequent reduction in other facilities, probably including steaming and fighting.

(K) In elaboration of "B" it is said that the navy must not be dependent upon the final decision of the air ministry as to the aircraft and aviation personnel which it shall have. It is admitted that at the present time the navy is being given entire satisfaction as to these matters, but is argued that under the stress of war such might not be the case. The detail of a con-

siderable number of naval officers to training and temporary duty with the air force has to a certain extent reduced the danger of shortage of aviators, but the status of these officers is one which is not liked by the navy as a whole or the officers concerned. Lack of control by the navy of its aviation is said to have resulted in lack of development of some of those instruments which are most essential. An example is given in the case of the range finder to determine the initial range. The instrument now used was developed under the direction of an officer who has had little if any naval experience, and apparently has little appreciation of the problem involved. Better instruments are said to have been developed, but were not adopted because the air ministry considered its own type satisfactory. The same thing applies to bomb sights. The standard instrument is considered satisfactory by the air force, the navy can not get a better type developed for use in aircraft operation with the navy. Various other cases of similar character have been cited.

(L) Manufacturers of aircraft and aircraft accessories put forward arguments against a single air force which well deserve consideration. Anyone who has anything pertaining to aviation to sell has but one final purchaser in England. That is the air ministry. It should be borne in mind here that the air ministry even controls civil aviation. Its judgment is final in so far as the sale is concerned. Manufacturers state that because of ignorance, indolence, or prejudice, good ideas and good articles are turned down without being given proper consideration. This results in retarding development. Were there separate air services, there would undoubtedly be keen competition in obtaining new ideas and articles, and the manufacturers or inventors would be almost positively assured of receiving full consideration.

General impressions based on observations

6. It is frequently difficult to determine the sincerity of those who argue for and against the navy having its own air service. Some of the most ardent supporters of the present system are ex-naval officers now in the air force. Their views are usually prejudiced by recollections of the treatment they received from the navy proper when they were in the old Royal Naval Air Service and further by the fact that they argued for a separate air force before it came, received increased rank and emoluments when it came, and will be more or less marooned and discredited members of the air force if the navy gets its own service, for it is not likely that they would be transferred to the navy, for in most cases they would not be wanted.

7. The development of aviation in recent years has brought the navy to a realization of its present value and future possible use. At the time the air force was created aircraft were not sufficiently developed to be of great use to the navy, and the Royal Air Service, built upon its own enthusiasm, grew to be rather a large organization with very little legitimate naval work to do. It consequently branched out into work properly belonging to the Royal Flying Corps, and besides being a more or less useless appendage of the navy, also became a thorn in the side of the army. When the movement toward amalgamation was started, it did not appear to those directing naval affairs that the loss of the Royal Naval Air Service would be much of a loss to the navy, and they raised very few objections. The situation to-day is entirely different. Were there two separate services, there would not be the slightest chance of amalgamation, for the opposition from the navy would be too strong to overcome.

8. The present plans of the navy toward regaining its air service seem rather easy to follow. It is waging a continuous fight in committees, in Parliament,

and in the press, to obtain control, and is gaining concessions here and there. Upon these concessions they are building the skeleton work of a naval aviation service. The number of naval officers detailed to the air force is rapidly increasing, and there is gradually being built upon what might be called an "aviation division" in the Admiralty. The plan is said to be to continue efforts toward getting its air service back, and to keep the public interested, then when there is a sufficient amount of naval personnel trained in aviation, to invite attention to the fact that the air force is in charge of something which is entirely naval in its mission and almost entirely naval in its make-up. Navy prestige and the proverbial backing of the navy by the people will probably do the rest.

9. Attention is invited to the fact that so far in this letter no attempt has been made to present arguments against the existence of a separate air force, distinct from either army or navy, for the defense of England against aerial invasion and for offensive purposes. The conditions which exist seem, in the minds of most people, to make such a force of vital importance. The principal conditions are:

1. Nearness of potential enemies.

2. Vulnerability to an attack on account concentration of population, industries, and communications.

10. The air force adherents play on the public mind by intimating that this protection might be lost if the navy gets its own air force, saying that such action might easily lead to a gradual dissolution of the entire air force. The argument is unsound, but has an appeal to the public which has vivid recollections of the air raids of 1915, 1916, 1917, and 1918.

11. In considering the question of desirability of a united air service for the United States, based on a comparison with the results in England, many important points of difference in the general situation appear. The first and most important is the difference in regard to proximity to potential enemies. Aircraft are essentially weapons of comparatively short range. If the enemy country is far away and separated by water, the chances of aircraft being required to repel attacks of enemy aircraft are slight, and the possibility of delivering an aircraft offensive against the enemy country is remote. Their primary use will, therefore, be in conjunction with the military and naval forces. This is not the case with England.

12. Another important thing to consider is the condition which brought about the formation of the Royal Air Force. It was obvious to those who understood conditions that England was not getting full value for its air services, and the remedy of amalgamation was applied. It is more than doubtful if such a radical remedy would be applied under conditions as they exist to-day. Partisans of both sides admit the powerful incentive to efficiency that exists in the competition of separate air forces.

* * * *

Letter of naval attaché, November 4, 1924

AMERICAN EMBASSY,
OFFICE OF THE NAVAL ATTACHÉ,
LONDON

Subject—Some fundamental consideration on a united air force

1. Armies fight on land, navies in the water, air forces in the air. **Decisive** results may be obtained on land by armies after the destruction of the enemy forces by occupation of his territory and control of his resources. Decisive results may be obtained in the water by navies after destruction of the enemy's

fleet by control communications and seaborne recruitment and supply. No decisive results may be obtained solely by gaining control of the air, because no nation is dependent for its existence on airborne commerce or communications.

2. Air force can effect the issue of war only as it may contribute to victory on the land or on the sea. That it is a most important factor in land or sea attack or defense there can be no doubt, and its importance is being daily enhanced by its development.

3. Due to the nature of the different elements in which they fight, each of the three forces has its own tactical technique of battle, and the services of each are necessary in its own sphere. While armies from the shore may attack navies within range, navies from the sea attack armies on the coasts, and air forces in the air attack both armies and navies within flight areas, it is not possible as yet to conceive of permanent success on any one of the three elements without the use of its own appropriate arm. But while strategic objects and strategic principles apply in common to all three arms, to accomplish the mission of battle the special tactics of all forces present must be perfectly coordinated. For this unity of command is essential. Due to lack of indoctrination and owing to the comparative rarity of the occasions where it is possible for armies and navies to combine their attacks in battle, there has existed in the past few occasions where this perfect tactical coordination has occurred, and historically combined attacks have usually been unsuccessful. With more combined training and unity of command these past difficulties may be partially obviated, but the unnecessary injection of a third independent arm into the combination is not a step in that direction. An independent air force under separate command and imperfectly acquainted as it is sure to be with the technique of the other two arms, will certainly add to the difficulty of coordination.

4. Armies and navies must from the nature of warfare act habitually apart, but this is not true of the army or navy and the air force. Air is common to both land and sea, and with the protection, support, and control of armies and navies the air force may operate in any part of the world. As a branch of an army or navy it may take its place in the plan of battle and fulfill the rôle assigned to it exactly in the same manner as any other part of the army or of the fleet. But, as an independent force under a separate head, it presents again the old problem of the combined attack with at best partially indoctrinated forces mutually ignorant for the most part of the others capacity and limitations. Is not coordination of forces in the battle fleet now sufficiently difficult, without introducing a new independent element?

5. The United Air Force in Great Britain grew out of a war emergency that applied to a particular situation. What was really sought was economy of resources for maximum production to meet a situation on the western front. It looked no farther. The tactics of future armies and navies fighting in every part of the world were not considered.

6. Rapid promotion and freedom from irksome discipline make the present British organization popular with its personnel, but wise heads in both the army and navy foresee the inevitable return to separate air forces at the first breath of war with first-class power. They are unable as well to understand why the army and navy should not have the benefit now of peace time preparation with the air weapon they will undoubtedly have to incorporate in their own forces when war comes.

* * * *

The navy and its Fleet Air Arm

The dissatisfaction of the navy with the present organization and control of its aerial arm has been apparent to the public generally for some years past. Public discussions and parliamentary questions have shown the concern with which the position is viewed by those with knowledge of the subject. Uneasiness has no doubt been allayed by the working arrangement reached between the admiralty and the air ministry in agreeing to the decision of His Majesty's Government to give a trial to the recommendations of the national defense committee. Nevertheless, anxiety still exists, since it is not clear that the compromise arrived at can overcome the inherent defects of a system involving dual control and responsibility for the efficiency of the fleet. How can that efficiency be effectively maintained, it is asked, when there exists within the navy a service separate from the navy, a service with different conceptions and different traditions, a service looking to an authority independent of the admiralty for its upkeep and preferment?

The fundamental error

The system now being tried is the result of the adoption of His Majesty's Government of the report of the national and imperial defense committee and the special subcommittee which consisted of Lord Balfour in the chair, Lord Weir, and Lord Peel. Owing to the unfortunate illness of Lord Balfour, precluding him from attending a majority of the meetings, from visiting establishments, or from personally questioning and hearing the evidence of witnesses, the report may virtually be looked upon as the work of Lord Weir and Lord Peel. The report itself was presented to Parliament on the last day of the summer session, 1923, and no opportunity therefore occurred at the time in the House of Commons for criticism and discussions. It was generally felt that the report itself was in the nature of a feeble compromise which tinkered only with details. It made no attempt to remedy the fundamental error in the existing system, namely, that an arm of the fleet—the Fleet Air Arm—is largely manned, administered, trained, and controlled by an authority other than the admiralty, and that thereby dual responsibility for the efficiency of the fleet replaces the single responsibility of the admiralty.

The press as a whole called attention to this aspect of the matter, and in the little time available before Parliament adjourned it was made clear that the report could not be accepted as in any way a final judgment on the question. In fact, the prime minister in announcing the decision of His Majesty's Government promised that the whole of the facts should be placed before the House when it met in the autumn, in order to allow the opportunity to challenge the decision by a motion. Owing to the changed political situation the opportunity for that challenge did not occur.

Meanwhile, as a result of the efforts of Lord Haldane, who was instructed by the present Government to endeavor to reach agreement between the admiralty and the air ministry as to the interpretation of the report of the subcommittee, arrangements have apparently been arrived at for putting into force that report, and for safeguarding, so far as possible, within the limits of the report the responsibility of the admiralty for fleet efficiency.

The precise effect of the agreement is not fully known, but so far as can be gathered from what has appeared in the press the number of naval officers in the Fleet Air Arm will be considerably increased, the arm will be provided out of admiralty votes, there will be admiralty representation at the air

ministry, and there will be a greater degree of control by the admiralty, both as regards the personnel and the provision of material.

All this is to the good, and it is certain that every effort will be made to make the agreement a working success. Peace conditions may permit of this. But dual responsibility, though possibly to a less extent than formerly, still exists, and while this dual responsibility exists it is contended that war requirements are not met.

A change will only finally be brought about when it is recognized generally that fleet efficiency suffers. It is desirable, therefore, if the public judgment in this respect is to be exercised to effect, that the relation between fleet efficiency and the control of the fleet air arm should be examined and understood, a clear opinion being then arrived at as to the acceptance or not of the contention that the present system is unsound and dangerous.

Battle the decisive factors

Let us first examine briefly certain fundamental principles with the object of ascertaining if the present system fulfills the requirements of such principles. The navy exists to destroy by battle, or, failing destruction, to neutralize by the threat of battle, the naval forces of the enemy. It is the existence of opposing naval forces which justifies the upkeep of the navy. Battle with those opposing forces is the object sought by the navy. Battle, therefore, is the decisive factor and is the supreme object for which the navy is trained.

A modern fleet consists of various arms, each charged in the strategical and tactical plan with its particular function. Thus we have the light cruiser arm, the destroyer arm, the submarine arm, the battleship arm, and now, in modern naval warfare, we have added the air arm. In fact, a fleet consists of various arms working on the surface, above the surface, and below the surface.

We have seen that battle is the decisive factor for which the fleet is trained. In the supreme fleet battle success will depend upon the maximum power being developed rapidly and smoothly by the work of all arms. To obtain this maximum power the naval view is that all arms require to be trained under a common doctrine, directed by a single command and manned by an officer personnel with general naval strategical and tactical knowledge. Only thus, it is claimed, can perfect strategical and tactical coordination be achieved.

This, briefly, is the doctrine of unity—unity of thought, unity of direction.

A dangerous doctrine

The alternative to this doctrine of unity is that of separation but cooperation. It is this latter system on which the fleet air arm is organized to-day. It is claimed that the fleet air arm is an integral part of the air force, not of the navy; that its officer personnel are air officers under the air ministry, not naval officers under the admiralty, and that its training is primarily their responsibility, only touching the admiralty when embarked on board the carriers.

The recommendations of the national defense committee it is true make arrangements for the Fleet Air Arm to be manned up to 70 per cent by naval officers, but these very naval officers during their service in the Fleet Air Arm are to be attached for this purpose to the air force and trained at air-force schools, emphasizing in fact the distinctive position of the Fleet Air Arm as an arm apart. It is as a cooperating force rather than as an arm of the navy that it differs from all other arms of the fleet such as the submarine arm, the destroyer arm.

The question, therefore, with which we are confronted, stands thus: In the various steps, administrative, training, operational, on which naval fighting efficiency in the supreme naval battle depend, is complete absolute single control and responsibility under the admiralty the surest road to success, or is dual control as between the admiralty and the air ministry, relying on understanding and cooperation, a more certain method?

In this connection it is pertinent to remark on the disadvantages which war experience has shown us are attendant on "cooperation." We have indeed been warned by the late Field Marshal Sir Henry Wilson that "the difference between cooperation and command is the difference between the loss and the winning of war." If this remark applies to the land battle, how much more does it apply to the sea battle.

In the former, while the commander in chief controls the plan of operations and the operations subsequent to battle, he exercises little actual control over the tactical movements concerned with the battle itself.

On the other hand, in the naval battle which takes place in a comparatively small moving area, under conditions in which time is an all important factor, while initiative on the part of subordinate leaders is essential and is encouraged, to develop the maximum power of the fleet as a whole in the shortest possible time calls for a large degree of personal control by the commander in chief himself from his position in the main battle line.

How can he exercise that control with confidence, it may be asked, if a vital arm of the fleet under his command is organized and trained on lines apart from the navy, and is partially manned by a personnel without the sea sense and the sea understanding? And do not these basic principles necessitate, if we are to insure maximum fighting efficiency at the critical moment, namely, when the hostile fleets are engaged in action, that the admiralty should exercise full and complete responsibility for the raising and training of every arm of the fleet, including the Fleet Air Arm?

Our sea dependence

But it may be held in defense of the present system that fleet efficiency is not an end in itself, that is only part of the whole, and that in investigating this question consideration should be given to the attainment of general military efficiency rather than to efficiency in a particular part of the system.

It is argued by this school of thought that fleet efficiency if it is achieved at the expense of air efficiency, becomes a matter for compromise, and the best organization from a purely naval point of view should be modified to meet the requirements of general home defense.

But can this argument be maintained in the face of what we believe are accepted propositions, namely that—

(1) The people of Great Britain depend for their existence as regards essential foodstuffs and supplies on overseas trade.

(2) This overseas trade depends now for its safety, and will depend in the future, so far as it is possible to forecast, on the ability of our naval forces to defeat in battle any enemy naval forces which threaten that trade.

The proof of these propositions will not be undertaken within the limited space at our disposal. They are the subject of general agreement, and they lie, as has been admitted by the committee of imperial defense, at the root of the subject of imperial defense. From them it follows that the ability of the people of Great Britain to exist in war, depends on the ability of the navy to defeat in battle an opposing navy. Our very life depends on naval fighting efficiency and makes that efficiency a matter on which it is not possible to compromise.

But it may be contended, while accepting this reasoning, that, nevertheless, there is another intense period which we require to keep constantly in mind, namely, the complete stoppage of our national life through a moral attack on the nerve centers of the country, and on the civilian population. By continuous and heavy air raids on London and other cities, and our dockyards, railways, and munition works, on the coal fields, electrical, gas, and water-power stations, it is claimed our defeat can be accomplished without the opposing navies or armies ever gaining contact with each other.

Naval officers are not impressed with this argument, which has so constantly been put forward in the past on the introduction of new weapons, and has been as constantly disproved. They are in agreement with the late Sir Cyprian Bridge who, in writing on the question of "Victory by moral effect," said: "Opposed to this attitude is the very general conviction of mankind, based on the records of nearly 30 centuries of belligerent procedure, that victory in war can be gained only by fighting for it, in or on whatever element hostilities may be conducted." And our doubts as to the extent of the actual peril from the air are further increased by the reflection that this attack on the morale of the nation, on defenseless towns, women, and children, opposed as it is to the Washington Treaty and to the sentiments of the age, is likely to react disastrously on the nation attempting it, precisely as the submarine campaign on merchant vessels acted finally so disastrously for Germany.

The naval and air perils

In spite of the foregoing considerations, however, let us accept that this air peril is one of the first magnitude, one to guard against which is vital to our existence. It follows that powerful air forces must be provided to attack the enemy. But acceptance of the air peril in no way modifies the gravity of the naval peril—that is, that the defeat of the British fleet would inevitably mean the starvation of these islands, including moreover the complete inability of our air force itself to operate owing to the stoppage of essential supplies.

The two perils are separate and distinct. The forces engaged in warding off the one can not be considered as available for assistance in combating the other, since the sea battle may be coincident with the maximum intensity of the air attack, and, moreover, may occur many hundreds of miles from the shores of Great Britain. If, therefore, the magnitude of the air menace to these islands be granted, it involves the creation of strong air forces separate and distinct from the Fleet Air Arm, whose function is to fight with the main fleet in the sea battle.

It should be noted in passing that because, from the nature of their functions, the air arm of the fleet is a separate entity to the general defense air forces, this does not in any way preclude the idea of naval air forces being utilized if required and if available to assist in the air battle. Just as local naval forces in a great war may be available to assist the army ashore by the supply of personnel and material, so local naval air forces may be available to assist the main air force.

What is fundamental, however, is that just as main naval forces which counter enemy main naval forces can not normally be drawn upon to assist the army until the enemy naval forces have been defeated in battle, so the main naval air forces are not available to assist the air force until the defeat of the enemy naval forces.

An essential factor in naval defense

We therefore conclude that the Fleet Air Arm can not be considered as something apart from the fleet or as belonging to the main air force.

On the contrary, it is a part of the fleet, and therefore should be organized to work with the fleet on principles precisely similar to those adopted in the case of every other arm, such as submarines. It should be trained to work with other arms at sea, to understand their functions, and thereby to appreciate how best to act in any given situation. To sum up, its organization should be naval; its maintenance and efficiency should be the sole concern of the admiralty.

But it may be urged that the Fleet Air Arm must play an important part in the sea battle; that during that battle it must be subject to the single operational control of the naval commander in chief; and that when serving afloat in peace time the Fleet Air Arm should be trained under the commander in chief. But is this to admit also that the Fleet Air Arm should be manned by a naval personnel and that its training prior to being embarked should be carried out by the admiralty? On the contrary, it will be argued, while insisting that single operational control when afloat and in battle is vested in the admiralty and commander in chief, nevertheless, air work, whether afloat or ashore, is subject to similar strategical and tactical requirements, while air-men and not seamen are required for this work, whether the operations be over the sea or over the land. Maximum efficiency will consequently be obtained by placing the responsibility for providing and the general administration and training of the Fleet Air Arm under the supreme air authority responsible for general air efficiency, the arm only coming under the direction of the admiralty for actual operations afloat.

Strategy and tactics

The argument in the foregoing depends for its conclusiveness on the assumption that air work, whether afloat or ashore, is subject to the same general strategic and tactical requirements. It is suggested that such an argument is fallacious, that, on the contrary, air work in connection with fleet operations, in its strategical and tactical aspect, is of a specialized nature not common to other military air operations, and that therefore the conclusion that such air work should be divorced from the navy is one which can not be maintained.

What are the strategical duties of the Fleet Air Arm, considering strategy in this connection as including the duties prior to the main forces gaining contact with each other? Certainly one of the primary duties in this phase is reconnaissance—to act as the eyes of the commander in chief, to search out the strategical area for the enemy, and to give early intelligence to the commander in chief by reporting enemy forces when found, stating as accurately as circumstances may permit their position, composition, and disposition.

To give some idea of the specialized naval nature of this work and the necessity for its being carried out by officers and ratings of the highest experience trained in the naval schools, let us consider for a moment the experience gained in the late war in regard to reconnaissance work performed by the light cruisers, which are the surface vessels engaged primarily in this duty, and which in future naval actions will act with aircraft of the Fleet Air Arm for this purpose. It was ascertained at an early stage that the finding and reporting of the enemy was a complex matter; it called for a high degree of naval experience, an understanding of the commander in chief's requirements, and, further, a technical knowledge of wireless telegraph limitations. It involved, further, a technical knowledge of wireless telegraph limitations. It involved also a decision based on the naval situation as to what should or what should not be reported. To reach a correct balance between these conflicting requirements called for naval judgment and training of high order.

Further, there was an important technical consideration, the enemy having been found, of reporting the features of his disposition. What course was the enemy steering, what number of destroyers were accompanying the fleet, could the movements of any submarines be detected? Accurate answers to each of these questions were required by the commander in chief to develop the plan of operations. Again this technical requirement necessitated naval knowledge and naval experience and naval training. And lastly, there was the question of accurately reporting the position of the enemy when that enemy had been discovered.

Importance of naval experience

Every one of the foregoing requirements are the requirements of the units of the Fleet Air Arm engaged on reconnaissance. They required naval strategic knowledge, naval tactical knowledge, naval technical knowledge, naval experience. On their efficient performance the whole success of the plan of operations may hinge, and it is to jeopardize such success if the personnel for that work are not trained in the naval service and are not naval officers completely and at all times under the admiralty.

It may be urged, in reply to the foregoing, that the importance of reconnaissance may also be granted, that the argument that naval personnel should be employed on this work is appreciated, and, in fact, it is allowed for at present in that there are a certain number of naval officers "observers," and that, by the 13th recommendation of the subcommittee of the committee of national and imperial defense, it is suggested that fleet reconnaissance as well as naval spotting should be entrusted to naval officers seconded or otherwise.

This is certainly an improvement on a system which resulted in officers of the Royal Air Force without naval training or experience being placed in the position of observers to the commander in chief. But we are still confronted with the arrangement by which naval officers are to be attached to the Royal Air Force during their service in the Fleet Air Arm, and are to be trained by air force officers in air force school on shore to carry out naval reconnaissance committee which recommended it, nor by the Government which accepted it. And it is further to be noted that the position is steadily becoming worse rather than better. Hitherto in the Royal Air Force there have been a certain number of senior officers who were originally in the naval service and joined the air service when that service was given an independent status. However, brilliant these officers may have been, the passing of the years since they left the navy has inevitably put them out of touch with the sea and the progress in naval science, and we are reaching a state of affairs when the naval training of naval air officers at the air schools under the air ministry is supervised and directed by an organization lacking both naval knowledge and naval experience.

Tactical considerations

The reasons have been set out for considering that the sphere of strategy in which reconnaissance work is a primary rôle of naval aircraft the duties involved are of a naval nature, demanding for their efficient performance the training and experience of a naval personnel. Does a similar conclusion apply in the sphere of tactics when the opposing fleets have engaged in battle and the issue of victory or defeat hangs in the balance? That tactical issue in the naval battle is finally determined by the gun, with which weapon the capital ships concentrate the maximum power in the minimum time, and it is the tactical aim of each command in chief to achieve the annihilation of

the other by ultimately bringing to bear the power of his gun batteries in decisive force. Thus a weaker fleet, by retiring tactics, torpedo and bombing attacks, may endeavor gradually to reduce the efficient units of the stronger fleet. The torpedo, bomb, and other weapons all play their part in this phase. But the final object is to achieve a situation whereby the former stronger fleet can be turned upon and destroyed by the gun.

Similarly, the stronger enemy may find itself in the initial stages prevented by the retiring tactics of the enemy in bringing to bear gun power. Tactics may have to be directed to frustrate the retiring tactics and force the enemy either to stand up to the gun duel or abandon his disabled units in flight.

The gun duel

The primary tactical aim, therefore, is to obtain the gun duel under the most advantageous conditions. And in this tactical aim, both in reaching the conditions which will make the gun duel possible and in insuring that the gun duel itself will be carried out to the greatest advantage to the commander in chief, the fleet air arm is given an important rôle. Does not the fact that the fleet air arm carries out definite tactical functions in the naval battle, and that success in that battle depends, in combination with other arms, on their efficient performance, imply that the fleet air arm is an integral part of the fleet? And is it efficient or reasonable, therefore, that these naval units should be manned, administered, and trained to a large degree by an authority other than the admiralty?

It may be raised in objection to this line of thought that, although the duties of these aircraft contribute so greatly to the success of the naval tactical plan, nevertheless their duties are air duties common to all forms of air service, whether carried out with the army, navy, or air force, and that the duties can not be considered as specialized naval duties. This line of argument, it is suggested, misconceives the nature of the duties. Every problem confronting the pilots and observers of the fleet air arm in their attempt to bring about the gun duel primarily depends for its solution on the naval tactical situation and can only be adequately answered by a thorough appreciation and understanding of tactical methods. Differing from land operations in which the airman is dealing with a comparatively stationary phase, the naval airman has to develop his attack on, or to furnish reports of, objects which themselves are moving, and are endowed with high manoeuvring capability. Is it not, under these circumstances, to jeopardize the success of the whole naval operations that the fleet air arm should be partly manned, administered, and trained under an authority whose responsibility is not concerned with victory in the naval battle?

Lesson on the battle of Jutland

Let us turn to the important duties carried out when the gun action is achieved, when the stronger force is endeavoring to keep the weaker force engaged, and when the weaker force is trying to escape by the intervention of smoke screens and the turning away maneuver. The solution of the problem of keeping the enemy engaged under such circumstances presented great difficulty in the war. How difficult may be judged from the expressed opinions of Admiral of the Fleet Viscount Jellicoe, and that the solution was not forthcoming up to the middle of 1916 may be judged from the escape of the German High Sea Fleet at the Battle of Jutland. It is to spotting aircraft that the commander in chief in the future will depend for assistance.

In the work of spotting, sea experience of a high order is required to distinguish targets, to report directly, to deal with the complicated problem of fleets moving at high speed. In fact spotting in the naval battle is strictly a naval gunnery problem, not an air problem, and as such should be carried out by naval officers trained under the sole direction of the admiralty.

Application of principles

The question of fundamental principles underlying the organization of the Fleet Air Arm, and the further question of the application of those principles in the spheres of naval strategy and tactics have now been considered. Such consideration has demonstrated the essential naval duties of the Fleet Air Arm, that the primary duties are naval air duties, and that the efficient performance of these duties depends primarily on naval knowledge, on which must be superimposed specialist air knowledge in the same manner that now specialist submarine knowledge is superimposed on naval knowledge in the submarine arm of the naval service. As a consequence of this, it may be suggested that the inefficiency of a system which separate the organization of this essentially naval arm from the organization of the remainder of the naval service, and which introduces dual control and responsibility for the manning and training of this arm, as opposed to single control by the admiralty and naval authority, is unsound.

Development and supply

Turning from the consideration of strategy and tactics to the spheres of development and supply, let us briefly inquire as to whether or not the present system is one which may be expected to insure maximum naval air development. Quoting from the report of the national defense committee, "under the present system, new design, experimental and research work to meet naval requirements are carried out by the air ministry after consultation with the admiralty, the admiralty putting forward suggestions as to types required, thereafter the air ministry assuming complete responsibility. The navy are not directly represented on the design, experimental, or research branches at the air ministry, but the air ministry utilize the services of a certain number of ex-naval officers who have been transferred to the air force."

The essential feature of this system is the complete absence of any responsibility of the admiralty for design and development in types of craft which are to play their part in the naval battle. The admiralty are in a position to suggest, but the power to useful suggestion under a system which separates consideration of the air from the purview of the admiralty is strictly limited. At no stage are the admiralty charged with any responsibility in regard to criticism of design or inspection during and after manufacture of the machines, whose functions are naval.

Different types of aircraft

It may be argued that aircraft, whether for general or sea operations, are similar, and that under the admiralty naval air requirements could not be met so efficiently as under a department which specializes on air development and on air research work. It is to be observed, however, in this connection that aircraft for use for naval purposes differ in many essential respects from aircraft used for military operations, that spotting, reconnaissance, and torpedo machines are types peculiar to the navy, and that the development of

these types to meet sea conditions, including their housing on board aircraft carriers, cruisers, and capital ships is largely a naval problem in which sea knowledge and sea experience are necessary. Nor is it suggested that, in this respect, there should be complete separation in the sphere of design between the admiralty and the air ministry; on the contrary, the experience of the air ministry as the authority primarily concerned with general air progress, military and civil, must be made the utmost use of for naval air work. But what is required is adequately to guard the responsibility of the admiralty, that is to insure that the admiralty is represented in the design department, and to insure that the admiralty officers so appointed are in a position to assume responsibility direct to the admiralty for designs carried out to the requirements of the naval staff. This is not allowed for under the present organization, nor in the proposals of the committee of national defense are any suitable arrangements made. It is true that in these proposals there is reference to an exchange of officers between the admiralty and air ministry, with a view to the diffusion of naval and air knowledge in both departments; but the question of responsibility in connection with design is not mentioned.

Nor is the essential point of admiralty inspection given any consideration in the report. The importance of this matter can be readily understood to the naval service which employs these machines in the naval battle, and therefore can not permit without anxiety the inspection during production being in the hands of another service.

In considering this question further it must be realized that the objections to the present division of responsibility in the sphere of design are likely to increase in gravity with progress in fleet air work. With that progress naval air design is likely to depart more radically than hitherto from general air design, and this applies particularly in regard to flying boats, the development of which may affect so profoundly the composition of the future navy. And it is in the development of flying boats that naval and seamanship knowledge in addition to air knowledge is so important.

Naval responsibility and supply

Turning to the question of supply, here again we are not dealing for the purposes of the fleet air arm with the same type of machine as that which is used for general military purposes. While there is no "operational" objection to a common source of supply provided, as in the case of design, naval responsibility in regard to inspection is adequately safeguarded, it is doubtful if any advantage will result. The arguments which obtained in the case of "common design" in order to make use of the central organization in the air ministry do not apply in the case of supply. As in the case of naval guns which are supplied to the navy through the admiralty organization, so in the case of aircraft for the fleet air arm it will probably be found more efficient and economical to depend on the admiralty organization, which is in the closest touch with the requirements of the naval service. It may be argued that under such an organization there is liable in times of emergency to be competition for supply between the different departments. As a result, however, of the recommendations of Parliamentary committees, which considered the experience gained in war in regard to the supply of articles in which departmental competition was liable to exist, this danger has been largely safeguarded against, and there is no reason to suppose that the organization now in force in this connection can not also adequately deal with the

supply of naval aircraft in the future leaving such supply in the hands of the admiralty.

This concludes our investigation of the organization of the Fleet Air Arm, so far as design and supply is concerned. It is held that in these spheres the present organization does not meet requirements, and the provision is not made for the exercise of admiralty responsibility.

Evils of dual control

But it is on the operational side that the chief danger of the present organization lies. On that side which govern naval fighting efficiency the evils of dual control are most apparent. In regard to this it has been stated that at the present moment under the existing system the admiralty have full operational control, and that consequently there is no force in the contention that the system should be altered. But such a statement misconceives the meaning of "operational control." It is true that air units when embarked on board H. M. ships come under the naval discipline act, are subject to the full authority of the captain of the ship, and are required to carry out exactly the operations which may be directed by the naval commander in chief, and that further the commander in chief gives orders as to the number and type of machines to be embarked for the particular operation. But more than this is required. Operational control necessitates control in the sphere of training, on the efficiency of which finally rests the ability successfully to carry out the operation. And further it necessitates control in the sphere of appointment to insure that the men most suited to the particular naval air work required are in the position where their work will be most valuable.

In regard to all shore training and all appointments, it is the air ministry and not the admiralty who are primarily responsible. While to the admiralty is left control of the actual carrying out of any particular operation, to the air ministry is left control of the means which largely govern success in performance. This is dual operational control in a pernicious form.

Problem of training

Considering the question of the training of the fleet air arm in somewhat greater detail, it is agreed so far as "pure flying" is concerned that this is an art common to all flying, naval, army, air, or civil, and that as such there is no objection to a common system of training in centralized schools under the air ministry. It may be further agreed that as regards actual fighting aircraft against aircraft, this art is also common to all military services, and that training in centralized school under the air ministry is desirable in the interests of efficiency and economy.

But so far as the navy is concerned the common degree of air training ceases here. After general and fighting training all naval air training is of a specialized naval nature, designed to meet the requirements of naval strategy and naval tactics. Such training finds no common ground with other forms of air training necessary for airmen working with the other services.

It is carried out in a great measure at schools ashore, just as naval gunnery and naval torpedo training is undertaken at shore establishments at Portsmouth, Plymouth, and Chatham. On its conduct depends the efficiency of the fleet air arm, and through the fleet air arm the efficiency of the fleet itself. And responsibility for this specialized naval training is, under the present system, vested with the air ministry.

Conclusion

The conclusion therefore reached is that the present organization of the fleet air arm which still leaves a separate service within another service; which still permits a division of responsibility between two authorities, the one naval, the other air, for what it is claimed is essentially naval work, such an organization can not be considered satisfactory or designed to meet the requirements of war.

The putting into force of the recommendations of the national defense committee may effect an improvement; a larger number of naval officers will receive air training; there will be a greater spread of air knowledge in the navy generally; a closer liaison may be created between the admiralty and the air ministry.

But dual control will still remain. And it is this dual control which it is believed, for the reasons given in the foregoing, is the fatal defect in the system. Under peace conditions, with good will and cooperation, the system devised by the national defense committee may possibly be made to work. But will that system adequately meet war conditions? Will it insure maximum naval power in actual battle? Will it permit naval operations to be carried out with smoothness and certainty?

These are the questions to which public judgment should be directed, for on the navy finally depends the security of the empire as a whole and the maintenance of essential trade, including those food supplies without which the people here at home must inevitably starve.

Journal of the Royal United Service Institution, gold medal naval prize essay 1923, by Capt. A. H. Norman, R. N.

CHAPTER IV.—THE NAVY AND AERIAL WARFARE

The influence of aircraft on ship design is likely to be equally marked. Aircraft can attack ships in two ways, by gas and bomb (in the latter is included the torpedo).

As regards gas, the extent to which this will be a menace to warships remains to be determined; should it prove serious, it may be necessary for warships to develop the power to make themselves gas proof at will; this power could undoubtedly be incorporated in new designs; whether it would prove feasible to introduce it in existing ships is a matter for investigation.

As regards bomb attack, a heavy bomber is a considerable menace to a warship, even to a capital ship; but the heavy bomber is helpless before the attack of a fast fighting airplane, and such machines must therefore be available to protect any capital ship in waters where heavy bombers may be met with. There seems no reason why the capital ship of the future should not be designed to carry a number of such fast fighters, which should furnish her with ample protection against any attack she would normally be likely to meet.

Existing warships, capital and otherwise, being neither gas proof nor equipped with more than one or two airplanes, must rely on their anti-aircraft armament, and on airplanes carried in carriers, for their defense against enemy airplanes; it is possible that these measures may prove effectual, but it seems more than probable that, until warship design has made provision for the new menace offered by airplanes, the latter will secure some slight temporary advantage, and it will be advisable for ships of war, unless adequately escorted by their own airplanes, to avoid waters where enemy bombers may be met. This, fortunately for the ships, is a comparatively easy matter,

since bombers, by their limited radius of action, are confined to operations within a short distance of their bases, which capital ships will normally have no reason to approach.

Merchant ships are vulnerable to both gas and bomb attack, and it is improbable that future design can in any way lessen this vulnerability, except perhaps by the provision of antiaircraft guns. They must, therefore, for purposes of defense, be formed into convoys and escorted by aircraft carriers through the danger area from enemy bombers.

Convoys of merchant ships are also open to attack from submarines and from surface craft. Against the former, aircraft do not provide adequate protection, as they are unable to see the submarine unless it breaks surface, and even if they see it, are unable to attack it effectively unless they can reach it before it dives. The most effective protection for a convoy against enemy submarines is a screen of light surface craft equipped with submarine-detection appliances and depth charges.

Against an enemy surface craft, aircraft might, if in sufficient numbers, prove an efficient protection to a convoy; but surface craft will normally operate on the ocean highways, to which aircraft will not be able to penetrate, and therefore for the defense of a convoy against surface craft, surface craft are needed.

It will now be of interest to examine to what extent the air force can assist the navy in its duties.

The function of a navy is to insure the unrestricted use of the high seas to its own nationals, and to deny it to those of the enemy. The seas may be used either for the transit of merchandise or armed forces: the problem to be solved by the navy is the same in both cases, namely, to protect the ships of its own nationals, be they transports or merchant craft, and to seize or destroy those of the enemy, while a subsidiary problem is the exclusion of neutral traffic, so far as legal limitations permit, from the ports of the enemy or of adjacent natural countries.

Now let us consider the protection of mercantile craft, or, as it is more commonly called, the protection of the trade routes.

The most vulnerable points of a trade route are its terminal points, as it is here that all routes must converge: a simple arithmetical calculation will show that if five submarines are disposed on an arc at a distance of $61\frac{1}{2}$ miles from a terminal port, the routes to which converge at an angle of 45° , they will, with a radius of visibility of 1 mile, sight every merchant craft approaching the port, whereas if they are 64 miles from the port, they will only sight 15 per cent of the ships approaching the port. Thus, while in the former case every ship would be sighted and possibly sunk, in the latter case only 1 in 7 would be seen. Incidentally, it may be mentioned that, if 100 mercantile vessels be collected into a convoy, in the first case the submarines will sink, say, 10 vessels out of the convoy, or 1 vessel in 10; whereas in the second, the submarine will only sight 1 convoy in 7, and the percentage of losses will, therefore, be reduced from 10 per cent to 1.4 per cent, or 1 vessel in 70.

Airplanes and dirigibles can here be of great assistance to the navy by patrolling the approaches to the terminal ports, and thereby forcing enemy submarines to keep at a distance from them.

In this work, however, aircraft, to be fully effective require support by surface craft: the ideal organization appears to be a patrol of dirigibles and fast air scouts, operating over the approaches to the ports, to report any enemy vessels seen, with reserve squadrons of heavy bombers and surface craft ready, on the report of the scouts, to seek out the enemy, and destroy him. It is evident that such an organization, to be effective, must work under

one direction, and therefore either the aircraft concerned must be placed under the local naval authorities, or vice versa. The type of surface craft to be sent out would of course depend on the nature of the enemy vessels reported; the more powerful the enemy unit, the more powerful would be the force required to deal with it.

Enemy submarines could best be dealt with by patrol draft already in their vicinity, who could be concentrated in the desired spot: enemy cruisers, aircraft carriers and capital ships would, of course, require similar forces to deal with them.

It will be evident from the foregoing that the operations of the navy and the air force are, so far as local defense of the sea approach to ports is concerned, so inextricably mixed up that a common organization is absolutely essential: and, further, it is evident that an operation commenced on the report of a single local air scout may extend into an operation of the first importance, possibly into the decisive fleet action of the war.

From this it follows that the question of whether the navy shall control the air force, or vice versa, in matters of local defense, raises the whole question of which shall be the predominant partner in matters of general defense: and as it is clearly impossible that the air force should control the movements of the naval force in the concentrations preliminary to a fleet action, it follows that in matters of local defense of ports, so far as their sea approaches are concerned, the aircraft employed must be under the direction of the local naval authorities.

Another operation in which the assistance of aircraft is required by the navy is the bombing of enemy war vessels in their bases, and attacks on enemy naval bases.

The advent of aircraft has provided the navy with a weapon which it has long lacked, namely, a means of forcing enemy ships to leave their base. Whether or not such means will prove effective, depends of course on the degree of local defense available at that base: but it is certainly conceivable that a base could be rendered untenable by repeated air attacks. Obviously it is necessary that, when the enemy ships are driven out, a fleet should be waiting in strategical support ready to destroy them. This necessitates the closest cooperation between the naval and aerial forces concerned, and as in the case of local defense, the cooperation can only be obtained in full by the two forces acting under a common direction. The whole operation is of a purely naval nature, and therefore it is clear that the directing arm must be the navy, and not the air force: so that in this matter, as in that of local defense, the aircraft employed must be placed under the direction of the naval authorities.

In the operations above described, the cooperation of the air forces with the naval forces has been strategical rather than tactical: there are many other operations in which close tactical cooperation is required, among which may be cited reconnoitering with a fleet: gas bombing, and torpedo attacks in a fleet action: spotting for gunnery: attack of enemy aircraft in a fleet action: screening fleets against submarines: forming a protective escort for convoys, etc. In these operations it is self-evident that the aircraft employed must not only work under the orders of the naval commander, but must be just as much part of the fleet as are the submarines, destroyers, cruisers, or any other arm.

It is now necessary to examine what are the qualifications required by the personnel of the aircraft working under the directions of the navy: and it will simplify matters if we first set out, in tabular form, some of the duties required of these aircraft. They are—

- (a) Patrol of trade routes in the approaches to terminal ports.
- (b) Attack on enemy vessels discovered in the area patrolled.
- (c) Attack on enemy ships lying in their bases.
- (d) Attack on enemy naval bases.
- (e) Forming protective escort for convoys.
- (f) Reconnoitering with a fleet.
- (g) Attack on enemy aircraft prior to, and during a fleet action.
- (h) Gas, bomb, and torpedo attack on enemy vessels during a fleet action.
- (i) Spotting for gunnery during a fleet action.
- (j) Laying of smoke screens during a fleet action.
- (k) Screening fleets against submarines.

For these duties two main qualifications are essential—the first, ability to fly, and to fight, in aircraft; the second, ability to recognize the various types of ships, to understand their manœuvres, the formation of their squadrons, their powers of offense and defense, their limitations of movement, their functions in the various operations, and, the nature, scope and purpose of their work.

The first of these qualifications can be acquired in a few months by any individual possessed of the requisite temperament; the second can only be acquired by actual life in the navy itself, and for this reason it is essential that the personnel of aircraft operating with the navy should consist of naval officers and men trained to fly, and not of air force officers and men.

In addition to the above qualifications, each member of the aircraft personnel must be specially trained in his own particular duties, such as spotting, reconnoitering, torpedo attack, etc.; it is evident that such training can best be carried out if the aircraft and personnel concerned are a component part of the navy, entirely at the disposal of the naval authorities and therefore available when required, and working solely under their direction.

Journal of the Royal United Service Institution, gold medal (naval) prize essay for 1923

CHAPTER V.—CONCLUSIONS

It has now been shown that all aerial operations, whether overland or sea, are only parts of greater military or naval operations; that such operations must be carried out under the control and direction of the military and naval authorities, and that the personnel required to man the aircraft employed in those operations must be soldiers and sailors as well as airmen. Naval and military air arms forming part and parcel of the navy and army, trained, administered, maintained, officered, and manned by the navy and army, are, therefore, essential to the proper functioning of these two forces, who can no more operate without them than they can operate without guns or torpedoes. For an independent air force no function exists; the best it could do, in time of war, would be to split into two halves, join the navy and army, and endeavor to adapt itself, as rapidly as possible, to the duties for which it is really required. The naval and military air arms, however, do bear a special relation to one another, by virtue of their common airmanship, which does not obtain in the case of any other arm; and it is desirable to preserve that relationship, not only to facilitate the exchange of units between the two arms should an emergency arise which rendered such a course necessary, but also to insure unity of progress in air technique and economy in supply and provision of stores and material. This could be effected by the establishment of a central flying school, officered and manned by the naval and military air arms in conjunction, which could undertake the following functions:

- (a) Instruction in flying.
- (b) Instruction in design, operation, and maintenance of material.
- (c) Preparation and issue of manuals.
- (d) Research and experiments.
- (e) Provision of material.

To this school of naval and military officers men could be sent to receive their first lessons in the art of airmanship; there they would receive a common groundwork training, and the two arms would there acquire a sense of community of interest and ideas which would facilitate any future cooperation that might be required of them in the schools or on service.

In addition to the central flying school, there should be naval and military flying schools where details of the art peculiar to the navy and army, respectively, would be taught and where research and experiments would be carried out. The result of such experiments would, of course, be communicated to the central flying school in order that due coordination of progress and dissemination of knowledge should be secured. The naval and military air arms should each be responsible for the care and maintenance of their own material and for the upkeep and administration of their own aerodromes. They would obtain their stores from the central flying school which would be responsible for its acquisition and for the accumulation of the necessary reserves.

Such an organization as that outlined above would combine the administrative advantage derived from unity of organization between the two air arms, with the strategical and tactical advantages derived from each being an integral part of the force with which it is operating. The establishment of an independent air force secures the former advantages, which are of comparatively minor importance, but it completely fails to secure the latter, which are of vital importance.

The pith of the whole matter may be summed up in a few words.

In war there are, and always have been, two objectives—firstly, the enemy's towns; secondly, the enemy's ships.

Towns can (normally) only be attacked by land forces; ships by sea forces.

Hence the division, throughout all history, of the armed forces of nations into navies and armies.

The air provides a third way of approach to the two original objectives, but does not provide a third objective.

Lacking a third objective, no *raison d'être* for a third arm exists.

The elevation of the air force to the status of a third arm is therefore unsound, and persistence in so fundamental an error in time of peace can only lead to disaster in time of war.

FRANCE

French aviation activities are divided among four departments of Government:

The war ministry.

The naval ministry.

The colonial ministry.

The under secretary of state for aeronautics in the department of the ministry of public works.

In this grouping the under secretary of state for aeronautics established in January, 1920, acts as the technical guide and material provided to the other ministries concerned. In accomplishing this he is assisted by military, naval, and civilian personnel.

FRENCH ARMY AVIATION

On December 5, 1922, an army air arm was established by legislative action on a basis similar in matters of promotion, and general organization to the other branches of the army such as the infantry, artillery, etc. Equipment is obtained through the agency of the under secretary of state for aeronautics.

FRENCH NAVAL AVIATION

Aviation in the French Navy is administered by the naval aeronautical department which is part of the naval ministry. French naval aviation, in its present organization, came into effect during the World War.

The central service of naval aeronautics has its headquarters in the rue Royale, Paris, and is under the direction of a rear admiral. This officer deals with all questions concerning naval aviation and aerostation. He consults with the naval general staff and the personnel administration in matters of policy, tactics, and forces. Reliance is placed on the under secretary of state for aeronautics in matters of technical research, experimentation, and for the purchase of aviation equipment.

The decree of December 27, 1921, following several acts of Parliament, gave to the navy all coast defenses as part of the sea front. Naval aviation plays an important part in plans for protecting the coast. French naval aviation is now being considerably expanded to meet the requirements of: (1) Operations with the fleet as a fleet air arm; (2) coast defense; (3) overseas operations to the colonies in maintenance of communications, especially for troop convoys and supplies to and from Africa.

COLONIAL AIR SERVICE

Air service in the colonies are handled by a bureau in the colonial ministry. This bureau cares for organization, the shipping of supplies, and the development of future commercial airways in the colonies. Elements of equipment are obtained through the agency of the under secretary of state for aeronautics. Squadrons are maintained in Indo-China, West Africa, and Madagascar.

The colonial aviation service is not used for purely military purposes. It is employed on such tasks as the transportation of officers or doctors, the surveillance of the country. In case of hostilities, it is expected to cooperate with the various branches of the armed services.

The under secretary of state for aeronautics intervenes in the colonial air service in two ways. First he supplies all aviation material for the respective air units; and, second, he subsidizes commercial air lines in the colonies as, for example, the Aerial Transportation Company, in Guiana. He also assists the colonial ministry in the planning of new airways for the colonies.

THE UNDER SECRETARY OF STATE FOR AERONAUTICS IN THE DEPARTMENT OF THE MINISTRY OF PUBLIC WORKS

The office of this secretary has as its primary tasks the control and development of the technical side of French aviation. In accomplishing this, it is supported by an extensive establishment known as the "Technical Service of Aeronautics." This service in turn is divided into two main activities: (a) Theoretical studies; (b) testing and experiments. (a) Is undertaken by the "Service des Études," while (b) is developed by the "Service des Essais et Expériences." The director of the technical service of aeronautics brings the two lines of activity under one management. He coordinates the projects of the theoretical section with the result obtained in the experimental section, and so establishes definite types.

In the second place, this office provides all the aeronautical material and equipment required by the army, the navy, and the colonial office. A methodical centralization is attempted in order to insure regular supplies obtained in such a manner as to support the whole of the French aeronautical industry. In accomplishing this, the under secretary of state is assisted by the "Aeronautical Manufactures Department."

In the third place, the under secretary of state for aeronautics controls everything pertaining to civil aviation. The creation of air lines, their subsidy and the matter of contracts with air transportation companies are all within his jurisdiction. In this work, the under secretary is assisted by the service of aerial navigation, an organization somewhat similar to the "Technical Service of Aeronautics."

Fourth, the national weather bureau, with the collection and dissemination of all meteorological data comes under the office of the under secretary of state for aeronautics.

The various branches of French aviation have been discussed somewhat at length, as it is believed the position of French naval aviation by doing so, may be better understood. It is to be noted that the French Navy has complete control over the training organization, and administration of its air forces. In the matter of the provision of equipment, that French naval aeronautical officers are part of the personnel of the providing department, so that sea air experience is effective in the development and inspection of aviation material for the navy.

So far as the success of the present general plan of French air organization for the navy, it may be remarked that it is generally considered satisfactory. Future development is expected to be along the lines now established.

JAPAN

Naval aviation in Japan is organized on lines very similar to those in the United States Navy. In December, 1920, an air board was formed. It was composed of high ranking officers in both the military and naval service. The purpose of the board was to consider a future air organization for Japan. Great Britain had gone to the United Air Service under the name of the Royal Air Force. There was a group in Japan who wished to build a similar organization.

The board just referred to considered three general plans of organization.

(a) To have under one general planning division three permanent noninterchangeable air services, namely, army, navy, and commercial.

(b) To have under one general planning division three permanent military services, namely, army, navy, and coast defense. Commercial aviation was not included in this plan.

(c) To have one air service. The personnel of this service to be independent from the army and navy, and to form a third military service. Under this scheme the aviation department alone was to be responsible for the equipping and training of the air force. It was to detail to the army and navy and commercial work such aviation units and personnel as it saw fit.

As before stated the final air organization adopted in Japan was one very similar to that of the United States. It became apparent to the Japanese Navy that in order to work successfully with the fleet, aviation personnel had to be taken from the fleet. That aviation at sea was a special business. That the various phases of future contacts between fleets involved such highly technical sea air work as: Reconnaissance under all conditions of weather

day and night prior to battle: gunnery spotting and range control for own fleet in battle: torpedo attacks: bombing attacks: laying of smoke screens: offensive and defensive air fighting. That the mistake of an air observer during darkness or haze in regard to the identity of a vessel or vessels might very readily be the deciding factor in defeat.

The Japanese also realized that under the most probable conditions of war, the Japanese fleet would be the first line of attacks and the first line of defense. That air information and tactics would be dependent upon units of the fleet, in many cases at advanced points or bases, and that complete fleet coordination and control was essential.

The above factors, combined with the evident failure of a United Air Service to give satisfaction to the British Navy, are believed to have settled Japan in her present air policy.

ITALY

A United air force was established by royal decree under the name of "The Royal Air Force," on March 28, 1923. This force comprises all air activities of the Italian Kingdom and colonies. The head of the Royal Air Force is known as "Commissariat of Aeronautics." The decree also provides for a general staff of aeronautics; and further goes into the details of general organization, sources of personnel, promotion, discipline, uniforms, etc. A ministry for aviation as a separate department of government has not yet been established by legislative action.

A further royal decree, that of September 10, 1923, completed, in certain respects, the transfer of naval aviation to the new department.

The general headquarters of the Royal Air Force contains the following offices in sections:

- (a) Organization.
- (b) Training, operations, and intelligence.
- (c) Personnel (recruiting and transportation).
- (d) Technical.
- (e) Supply.

The functions of the general headquarters of the Royal Air Force are:

- (1) Recruiting, training, and employment of all the forces of the air force.
- (2) The development of the program for the air force in accordance with the directions of the commissariat.
- (3) Establish, in agreement with the office of the intendant general of aviation the despositions for mobilization.
- (4) Submit, in agreement with the office of the intendant general of aviation, proposals relative to the formation of new units and dependent sections.
- (5) Keep in touch with the technical progress of foreign air services, through the reports of aeronautical attachés.
- (6) Determine the military necessities from the standpoint of aeronautical technical progress.
- (7) Determine in agreement with the office of the intendant general of aviation, the requirements as to the organization of new aviation fields, etc.
- (8) Provide for technical activities and practical tests of an exclusively military character.
- (9) Recruit, train, and employ reserve personnel.
- (10) Supervise the administration of material requisitioned, in accordance with supply tables, from stores which are directly under the office of the intendant general of aviation, and provide for repairs which can be made with the means at the disposal of the units.

Further details of organization are carried out under the intendant general by three main divisions.

(a) Engineering and construction division.

(b) Training and traffic division.

(c) Personnel and administration division.

The following are the groups of officers that form the Royal Air Force:

(a) Corps of officers under headquarters Royal Air Force. These are officers on duty with, or available for duty with, the flying units. They are equivalent to line officers.

(b) Corps of officers belonging to the aeronautical engineering and construction corps, under the intendant general for aviation.

(c) Corps of officers belonging to the aeronautical commissariat corps. They perform administrative functions in the various offices subordinate to the intendant general for aviation.

(d) Corps of air port officers.

In regard to the reasons in Italy for taking up a United air force policy. First, the geographical position of the country in close proximity to a number of countries, all potential enemies, made the need of large air masses under one control the primary consideration for attacks on important enemy centers, and to defend the northern Italian industrial sections as well as to defend the extensive coast line. The activities of the Italian Fleet, with its air needs, in the probable rather restricted areas of operations were made secondary to this primary consideration.

In the second place, the air services under former organizations were held back in development by lack of funds. Many turned to the United Air Force in order that aviation in Italy might have greater recognition, and the necessary financial support.

As to the success of the present organization, opinion differs, but there is evidence already that the fleet has begun to feel that its needs for special type of sea equipment are not forthcoming, and that naval aviation is secondary in importance.

The following comments on the United Air Force in Italy are taken from naval attaché's letter of November 21, 1924:

"1. The Italian and foreign authorities in Rome have been interviewed in regard to the advantages and disadvantages of a United air service. As was to be expected, large majority of the aviation officers in this vicinity (including those who were formerly naval officers) are strongly in favor of a United air service. Whereas a majority of the authorities of the army and the navy think that it would be better for the aviation branches to be integral parts of the army and of the navy.

"2. The principal arguments advanced in support of united air service are:

"(a) Aviation will be unduly subordinated and will not be properly developed and expanded while it is assigned as integral parts of the army and of the navy. The extreme conservatism of the high military and naval authorities result in failure on their part to recognize the importance of this new arm, and consequently there is a strong tendency to neglect aviation. A high Italian official remarked as follows:

"'Before the united air service was organized aviation was stifled and all effort and money were employed in building up the other branches of the services. We had only about 200 aircraft, of which 27 were naval aircraft. We now have about 1,500 aircraft, of which about 250 are suitable for naval purposes.'

"(b) Increased economy and efficiency is obtained through having a united air service. In this connection it is argued that it is more economical and

efficient to have one centralized engineering staff, and one centralized agency for the purpose of purchase and distribution of material. Whereas the assignment of the aviation branches as integral parts of the army and of the navy results in unjustifiable duplication in engineering staffs, and in inefficiency, and undesirable competition in purchasing material.

“(c) A united air service affords a unified control of all the air strength of the country, which is essential in war operations of the air force, independent of the army and navy. Independent operations of the air forces will be employed for the purpose of: (1) destroying the enemy's facilities for manufacturing war materials; (2) attacking concentrations of troops and of war supplies; (3) harrassing the enemy line of communication by continuous attack behind the lines; (4) breaking the morale of the enemy population by frequent attacks on the interior, spreading propaganda, etc. It is argued that it probably will be essential for the entire air strength to be made available for effecting independent action as outlined above or for the purpose of gaining air supremacy in some particular area, and that therefore the air force should be organized under one control in order that efficient use may be made of the entire air strength in time of war.

“3. The principal arguments advanced against a united air service are:

“(a) In order for the aviation branches to be prepared to operate efficiently with the army and with the navy, it is essential that the air strength required in these services be an integral part of and directly under the control of the authorities of the service to which it belongs.

“(b) In order for the aviation arm to operate efficiently with the navy (or the army) it is essential that the personnel be thoroughly indoctrinated and trained in the strategy and tactics of naval warfare and with naval life in general. The only way in which the personnel can be thus trained and indoctrinated is through long association with the service.

“(c) The assignment of aviation units from a separate air force for duty with the navy (or army) can not but result in friction and inefficiency. The personnel must be an integral part of the service and wholly loyal to it.

“(d) A united air service results in increased expense to the Government. It is argued that the statement frequently made that a united air service is more economical is, in fact, not true. It is pointed out that the establishment of an air service necessitates the establishment of engineering, purchasing, medical, and a number of other staffs and facilities which to a great extent duplicate similar facilities already existing in the navy and in the army.

“4. It appears that the disadvantages of a united air service far outweigh the advantages. This is particularly true in the United States, as our geographical position relative to probable enemy countries is such as to render impossible any extensive air operations independent of the Army and Navy—at least until the effective radius of action and the reliability of aircraft have been very greatly improved. Obviously there is much more likelihood of extensive air operations being carried out independently of the army and navy in European countries, where possible warring nations are sufficiently close to each other as to permit of carrying on such operations from home air bases. But in those countries it appears that the leading authorities in military and naval circles hold the opinion that the army and the navy should each contain (as an integral part of and under the direct control of) an aviation branch of appropriate strength.

“5. It is pertinent to point out the fact that some of the strongest advocates of a united air service are the aircraft manufacturers, and certain aviators

who undoubtedly would have a better chance for promotion and increased pay in the air service than in the army or navy. It is believed that personal interest may have an undue influence upon some of these individuals."

III

Comments on certain features that apply to an air service for the United States Navy

Having reviewed briefly the organization in the air services of other navies, attention is called to the fact that each of the countries concerned has been actuated in their choice of service by:

(1) Geographical location.

(2) Special problems in national defense with the fundamental requirements of the first war steps in views.

The question for the United States should be handled on the same basis. It is not what this or that country has found expedient to adopt in its air organizations; but what are the evident requirements of the United States. The success or lack of it, in certain forms of organization abroad is useful as a guide; but our own needs and particular situation should be the deciding factor.

This country is widely separated from nations of powerful air forces. The need of large masses of air units for home defense to meet similar masses from neighboring States is not apparent. The first line of defense is the fleet. After the outbreak of hostilities the defense will, in all probability, be operating from bases distant from the home coasts. Aviation under such conditions is a vital arm of the Navy, and can only give complete naval aviation efficiency if it is closely coordinated and controlled by a personnel which is part of the fleet.

The various phases in modern sea battle are so dependent upon the tactical success of several different arms of the fleet that the whole is a complicated study. Only by being part of the fleet and by growing up with the fleet in tactical exercises and battle development can the air officer gain the necessary training and experience. He must be able on the day of battle to make a correct observation and report, under various weather conditions, of the enemy's disposition of forces. It is to be noted, that a mistake in his radio to the commander in chief, as to type of vessels and their bearing from the reference point may make later the difference between success or failure. This air officer has need of being a navigator, a tactician, and a seaman.

Take again the case of another air officer in the first phases of battle contact between the two fleets. The success or failure in observing and reporting the fall of the opening long range salvos may have much to do with victory or defeat. In aircraft torpedo attacks through smoke screens; in ship bombing, and ship protective air fighting, intimate knowledge of own ships, their characteristics and most probable next manoeuver are essential to the aviator.

Sea air work is just as much a speciality as the torpedo attack of light forces, the handling of submarines in battle, or the use of artillery in land warfare.

In regard to the claims from certain sources that aviation is the all important factor in coast defense, and that it can destroy any fleet approaching our shore, the argument is frequently clinched by citing as examples the sinking under fine weather conditions of certain old battleships at rest on the water, and undefended. Such claims should be weighed in the light of actual fighting conditions that would prevail in war, fair weather and foul,

storm and fog, winter and summer; and a fleet, defended by aircraft, able to maneuver and strike back.

The ability to hit a moving target at battle heights is not so easily accomplished, as some critics would have the country believe. As an example of this, a recent attack exercise, that of July, 1924, by the British Royal Air Force on the battleship *Agamemnon* underway and controlled by wireless off the coast of England is cited:

"The bombing exercises which were carried out in 1923, were continued in 1924, but under somewhat different conditions.

"In addition to the practice which was to be obtained by bombing a ship underway, it was desired to exercise squadrons in bombing a target after a long cross country flight in formation. For this purpose two land squadrons were employed and they flew from their own airdromes, which were about 150 miles from where the ship was operating.

"It was hoped to practice bombing from greater heights than in previous years. This, however, was impossible owing to clouds. The atmospheric conditions were very bumpy and were against any accurate bombing being carried out.

"The following were the results of the practices:

| Run | Type | Height | Bombs dropped | Hits on Agamemnon |
|------------|----------------|-------------|---------------|-------------------|
| | | <i>Feet</i> | | |
| 1..... | Formation..... | 12,000 | 8 | 0 |
| 2..... | do..... | 9,000 | 3 | 0 |
| 3..... | do..... | 6,000 | 8 | 0 |
| 4..... | do..... | 6,000 | 8 | 0 |
| 5..... | do..... | 6,000 | 8 | 0 |
| 6..... | do..... | 6,000 | 16 | 0 |
| 7..... | do..... | 6,000 | 12 | 0 |
| 8..... | do..... | 6,000 | 16 | 0 |
| 9..... | do..... | 6,000 | 16 | 0 |
| 10..... | do..... | 6,000 | 16 | 0 |
| 11..... | do..... | 5,000 | 3 | 0 |
| Total..... | ..... | ..... | 114 | 0 |

The importance of aircraft in coast defense is fully appreciated, but that this element may be substituted to-day for a fleet, and that all aviation should pass into the control of a new department is not accepted. It is not considered that such a step is warranted by information from abroad in the experience and plans of other countries, nor is it believed suited to our particular problems of national defense.

GENERAL

COMPARATIVE PERSONNEL STRENGTHS OF TREATY NAVIES October, 1924

| Items | United States | | | British Empire | | | Japan | | | France | | | Italy | | |
|--|---------------|-------------|------------|----------------|-----------|----------|-----------|---------|---------|----------|---------|---------|----------|---------|---------|
| | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total |
| 1. Regular Navy..... | 8, 148 | 111,86, 439 | 10 94, 587 | 2 7, 746 | 3 81, 155 | 88, 901 | 13 7, 218 | 65, 404 | 72, 622 | 3, 496 | 55, 000 | 58, 496 | 2, 188 | 40, 591 | 42, 779 |
| 2. Royal Australian Navy..... | --- | --- | --- | 428 | 3, 660 | 44, 088 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. Royal Canadian Navy..... | --- | --- | --- | 73 | 385 | 3 438 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. New Zealand Division of Royal Navy..... | --- | --- | --- | 40 | 686 | 6 726 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. South African Division of Royal Navy..... | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Civilian crews of auxiliaries..... | --- | --- | --- | 16 | 114 | 7 130 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. Royal Air Force assigned to naval aviation..... | --- | --- | --- | --- | 4, 113 | 8 4, 113 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total..... | 8, 148 | 86, 439 | 94, 587 | 366 | 3, 184 | 9 3, 550 | 7, 218 | 65, 404 | 72, 622 | 3, 496 | 55, 000 | 58, 496 | 2, 188 | 40, 591 | 42, 779 |

¹ Total number of men appropriated for is 86,000.

² Includes 236 on half pay, unemployed pay, lent to Royal Air Force, or foreign governments. Includes 413 midshipmen at sea who correspond to ensign, United States Navy. Includes 120 naval constructors and 75 civil engineers. Naval constructors and civil engineers are not officers in the British Navy, but perform same duties as naval constructors and civil engineers United States Navy. Does not include 110 officers lent to Dominion navies who are included in items 2, 3, 4, and 5.

³ Does not include 760 men lent to foreign and Dominion governments who are included in items 2, 3, 4, and 5.

⁴ Includes 76 officers and 8 men lent to Royal Navy; 68 officers, 20 warrant officers, 414 men lent from Royal Navy.

⁵ Includes 30 officers and 17 men lent to Royal Navy; 6 officers, 3 warrant officers, 15 men lent from Royal Navy.

⁶ Includes 54 men lent to Royal Navy; 27 officers, 9 warrant officers, 395 men lent from Royal Navy.

⁷ Includes 9 officers, 1 warrant officer, and 25 men lent from Royal Navy.

⁸ The total shown, 4,113, includes the merchant marine officers manning auxiliaries, but data is not available to separate this total into officers and men. This personnel mans auxiliaries which are manned in United States Navy by regular officers and men.

⁹ The Royal Air Force supplies the personnel for naval aviation. The only strictly naval personnel in the naval aviation service consists of 84 officers and 117 men, which is not included in item 7 but is carried in item 1. 610 officers and 1,877 men are employed in United States naval aviation, exclusive of those for general service on aircraft carriers, tenders, stations, etc. The figures shown for the Royal Air Force in item 7 are those attached to the coastal area headquarters for aircraft carriers and flights on carriers abroad, etc. On July 1, 1924, the total strength of the Royal Air Force was: 3,342 officers, 28,542 airmen, and 7,815 civilians and natives. Of these totals, 2,302 officers, 20,731 airmen, 2,805 civilians were in home stations, such as air ministry, training stations, supply depots, manufacturing plants, etc. The duty performed being for both that portion of the air force detailed to coastal area and the navy and that portion serving in cooperation with the army and as a separate air force. A portion of this personnel should be added in making a comparison.

¹⁰ The following gives the percentage of officers and men afloat on Oct. 1, 1924: United States: Officers, 52.5 per cent; men, 72.9 per cent. Great Britain: Officers, 56.25 per cent; men, 66.38 per cent. Japan: Officers, 54 per cent; men, 62 per cent. Note: Includes officers and men in United States Navy ashore at aviation stations, which are not included in British Navy.

¹¹ An analysis of the turnover in enlisted personnel for the United States shows that 31,520 men will be enlisted during the fiscal year 1925, of which 18,344 will be first enlistments and 13,176 will be reenlistments. The number of recruits entered in the Royal Navy for year ending Sept. 30, 1924, was 5,869.

¹² Does not include the Royal Indian Marine, consisting of 146 officers, 24 warrant officers, and 1,170 men. The Coast Guard as a naval force has ceased to exist. 3 officers and 156 men included above are on duty in connection with radio and signal stations. In addition there are 34 retired officers and 156 pensioners.

¹³ Includes 391 midshipmen at sea. Does not include 240 civilians of commissioned officer rank to and including commander's rank performing naval duties. Data of Japan's is as of Sept. 1, 1924.

¹⁴ Includes Japanese naval aviation which has on duty 228 officers and 686 men of aviation ratings.

¹⁵ Includes French naval aviation which has on duty 209 officers and 3,016 men.

Number of civilians on mercantile or yard craft agreement for Navy

| Items | United States | | | British Empire | | | Japan | | | France | | | Italy | | |
|---|---------------|-----|-------|----------------|-----|-------|----------|-----|-------|----------|-----|-------|----------|-----|-------|
| | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total |
| 1. Tankers ¹⁷ | | | | | | | | | | | | | | | |
| 2. Various yard craft ¹⁷ | | | | | | | | | | | | | | | |
| 3. Naval armament vessels ¹⁷ | | | | | | | | | | | | | | | |
| 4. Victualling yard craft ¹⁷ | | | | | | | | | | | | | | | |
| 5. Hospital ships ¹⁷ | | | | | | | | | | | | | | | |
| 6. Fleet service tugs ¹⁷ | | | | | | | | | | | | | | | |
| 7. Harbor service ¹⁷ | | | | | | | | | | | | | | | |
| Total..... | | | | | | | | | | | | | | | |

¹⁷ 1,703
¹⁸ 1,546
 200
 258
 105
 60
 241
 4,113

All manned by Regulars,
 United States Navy.

Items 1 to 6 manned by
 regulars, Japanese
 Navy.

Manned by regulars,
 French Navy.

¹⁷ Percentage of sea transportation of fuel, stores, etc., for naval use which is done in British merchant vessels or auxiliaries with merchant marine crews: Fuel oil, 85 per cent in Government owned auxiliaries with mercantile crews; 15 per cent in commercial tankers. Coal, 100 per cent in commercial vessels. Stores, 17 per cent in Government-owned auxiliaries with mercantile crews: 57 per cent in other Government-owned auxiliaries; 26 per cent in commercial vessels.

¹⁸ Costs, etc.; Vote 8, sec. 2, p. 102, British Navy Estimates, 1924-25.

Naval reserves

| Items | United States | | | British Empire | | | Japan | | | France | | | Italy | | |
|--|---------------|--------|-----------|----------------|--------|-----------|----------|--------|--------|----------|--------|---------|----------|--------|--------|
| | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total | Officers | Men | Total |
| United States, Class 1..... | 98 | 6,803 | 6,901 | | | | | | | | | | | | |
| United States, Class 2..... | 1,224 | 4,847 | 6,071 | | | | | | | | | | | | |
| United States, Class 3..... | 88 | 1 | 89 | | | | | | | | | | | | |
| United States, Class 4..... | | | | | | | | | | | | | | | |
| United States, Class 5..... | 82 | 46 | 128 | | | | | | | | | | | | |
| United States, Class 6..... | 2,522 | 11,208 | 13,730 | | | | | | | | | | | | |
| Royal Naval Reserve..... | | | | 1,453 | 7,397 | 9,050 | | | | | | | | | |
| Royal Fleet Reserve..... | | | | | 26,283 | 26,283 | | | | | | | | | |
| Royal Naval Volunteer Reserve..... | | | | 289 | 3,261 | 3,550 | | | | | | | | | |
| Special reserve of engineer officers..... | | | | 172 | | 172 | | | | | | | | | |
| Officers on emergency list..... | | | | 221 | | 221 | | | | | | | | | |
| Royal Naval Auxiliary Sick Berth Reserve..... | | | | | | | | | | | | | | | |
| Royal Australian Naval Reserve..... | | | | | 1,275 | 1,275 | | | | | | | | | |
| Royal Canadian Naval Reserve and Volunteer Reserves..... | | | | 158 | 4,670 | 4,828 | | | | | | | | | |
| South African Royal Naval Volunteer Reserves..... | | | | 66 | 688 | 754 | | | | | | | | | |
| Royal New Zealand Naval Reserve..... | | | | 18 | 577 | 595 | | | | | | | | | |
| Other Naval Reserves..... | | | | | 67 | 67 | | | | | | | | | |
| Total..... | 4,014 | 22,905 | 19,26,919 | 2,377 | 44,418 | 20,46,795 | 2,173 | 30,885 | 33,058 | 8,375 | 96,700 | 105,075 | 4,514 | 60,000 | 64,514 |

¹⁹ Does not include 1,348 retired officers of all ages; and 261 retired enlisted men, under 55 years of age, who form an additional reserve.

²⁰ Does not include 7,459 retired officers of all ages; and 18,405 men, pensioners under 55 years of age, who form an additional reserve.

PERSONNEL DATA

Comparison of Marine Corps

| United States ¹ | | | British Empire ² | | | Japan | | |
|----------------------------|--------|--------|-----------------------------|--------------------|---------------------|----------|-----|----------------|
| Officers | Men | Total | Officers | Men | Total | Officers | Men | Total |
| ³ 1,166 | 19,500 | 20,666 | ⁴ 440 | ⁵ 9,605 | ⁶ 10,045 | 0 | 0 | ⁷ 0 |

¹ Number of officers and men United States Marines that serve afloat: Officers, 67; men, 2,100.

² Includes 155 warrant officers.

³ Number of officers and men, British marines, that serve afloat: Officers, 178; men, 5,570. Percentage of total number officers and men afloat, British Empire: Officers, 40.5 per cent; men, 58 per cent.

⁴ In addition, 4 on half pay or lent to Dominions.

⁵ In addition, 57 lent to Dominions.

⁶ In addition, there is the Royal Marine Reserve consisting of: 642 retired officers; 3,893 men pensioners; and 3,823 men in the Royal Fleet Reserve. *Note:* Patrol of shore stations is carried out by a special force—royal marine police, 7 officers and 276 men; metropolitan police, 685; civilian police, 406. No regular marines are used for this duty.

⁷ Japan has no force corresponding to the Marine Corps of the United States and of the British Empire. The guarding of navy yards, etc., is carried out by 850 marine police under the minister of marine.

Remarks on enlistments

UNITED STATES

Enlistments in the Navy are for 4 years only. There are still some short term enlistments unexpired which tend to increase the turnover.

It is estimated that 31,520 men will be enlisted during the fiscal year 1925, of which, 18,344 will be first enlistments and 13,176 will be reenlistments.

An examination of the enlisted personnel as of June 30, 1924, shows the following:

| | |
|--|--------|
| Men with less than 4 years service | 67,213 |
| Men with 4 and less than 8 years service | 11,110 |
| Men with 8 and less than 12 years service | 5,138 |
| Men with 12 and less than 16 years service | 2,662 |
| Men with more than 16 years service | 1,204 |

Note: The handicap which a short period of enlistment places upon a navy should be recognized in connection with this general comparison of personnel.

The short period of enlistment in the United States Navy with its accompanying heavy yearly turnover in men necessitates large items in cost and personnel to handle matters of recruiting and training. As illustrating this point, the United States Navy has need of 500 enlisted men in the recruiting service. Great Britain with a relative small yearly turnover in personnel needs but 65. Different economic conditions in the two countries also bears upon the subject. Great Britain benefits by the longer periods of enlistments in reduced operating costs. Seasoned personnel in long enlistments require less steaming and gunnery exercises, less instruction at shore establishments and aboard ship, to maintain the same relative efficiency with a personnel in short periods of enlistments.

GREAT BRITAIN

Number of petty officers, etc., Royal Navy:

| | |
|-------------------------------------|---------|
| Chief petty officers | 9,213 |
| Petty officers | 10,748 |
| Leading ratings | 11,096 |
| A. B. ratings | 38,961 |
| Ordinary ratings | 5,139 |
| Boys (service) seamen class | 2,141 |
| Boys under training | 3,190 |
| Boys under training—artificer class | 667 |
| Total | 181,155 |

1 Character of enlistments in this force.

| | |
|---|--------|
| (1) Number of boys under training and boys (service) | 5,908 |
| (2) Serving first enlistment of continuous service viz., for 12 years | 51,856 |
| (3) Serving second period of continuous service, viz. 10 years to complete 22 for pension | 19,476 |
| (4) Special service, viz. 5 years after which transfer to reserve | 1,119 |
| (5) Noncontinuous service, British, Maltese, foreigners and miscellaneous | 2,706 |

Note: Boys (service) are those who have been sent to sea after a certain amount of training ashore, and are in addition to the regular complements as stated for the vessels on which they are serving. Boys under training are those at training establishments ashore, and have not as yet been sent to sea.

Royal Marines

| | |
|---|-------|
| (1) Number serving first enlistment of continuous service | 7,199 |
| (2) Number serving second period of continuous service | 2,242 |
| (3) Miscellaneous | 64 |

JAPAN

Enlistments for all petty officers is for 10 years (6 years active, 4 years reserve).

For other enlisted men the period is 12 years.

For volunteers the period is 6 years active service, 6 years first reserve.

For conscripts the period is 4 years active, 3 years first reserve, 5 years second reserve.

Comparative table showing division of commissioned and subordinate officers in accordance with rank

| Corps | Admiral of fleet | | | Admiral | | | Vice admiral | | | Rear admiral | | | Captain | | | Commander | | | Lieutenant commander | | | Lieutenant | | | Lieutenant (junior grade) sublieutenant | | | Ensign | | | Midshipmen at sea | | | Total | | |
|----------------|------------------|---------------|-------|---------------|---------------|-------|---------------|---------------|-------|---------------|---------------|-------|---------------|---------------|-------|---------------|---------------|-------|----------------------|---------------|-------|---------------|---------------|-------|---|---------------|-------|---------------|---------------|-------|-------------------|---------------|-------|-------|--|--|
| | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan | | | |
| Line 1 | 6 | 11 | 11 | 22 | 13 | 13 | 60 | 49 | 52 | 280 | 207 | 167 | 657 | 362 | 401 | 909 | 664 | 705 | 1,565 | 1,340 | 991 | 482 | 995 | 1,188 | 1,115 | 2 376 | 355 | 4,368 | 4,732 | 3,883 | | | | | | |
| Medical | | | | 1 | 1 | 1 | 6 | 4 | 5 | 19 | 33 | 19 | 194 | 63 | 50 | 163 | 194 | 72 | 74 | 388 | 136 | 109 | 158 | 8 | | | 397 | 799 | 411 | | | | | | | |
| Dental | | | | | | | | | | | | | | | | 21 | 37 | | 26 | 106 | | 15 | | | | | 48 | 158 | | | | | | | | |
| Supply | | | | | | | 2 | 3 | 5 | 22 | 24 | 18 | 151 | 45 | 35 | 119 | 76 | 67 | 192 | 354 | 120 | 9 | 70 | 111 | 9 | 3 37 | 36 | 532 | 581 | 393 | | | | | | |
| Chaplain | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Instructor | | | | | | | | | | | | | | | | 14 | | | 49 | | | | | | | | | 96 | 85 | | | | | | | |
| Construction | (9) | (9) | (9) | (9) | (9) | (9) | (9) | (9) | 2 | 3 | 20 | 12 | (9) | 31 | 11 | (9) | 15 | 5 | (9) | 120 | 15 | (9) | 35 | 15 | (9) | | | 131 | 223 | 61 | | | | | | |
| Civil engineer | (5) | (5) | (5) | (5) | (5) | (5) | (5) | (5) | 2 | (9) | (9) | 5 | (9) | 15 | | (9) | 8 | | (9) | 67 | (9) | (9) | | (9) | | | 75 | 97 | | | | | | | | |
| Total | 6 | 11 | 11 | 23 | 15 | 15 | 68 | 60 | 65 | 325 | 306 | 216 | 1,017 | 522 | 497 | 1,166 | 1,006 | 849 | 1,906 | 2,420 | 1,262 | 491 | 1,227 | 1,472 | 1,141 | 413 | 391 | 5,728 | 6,682 | 4,778 | | | | | | |

¹ In line officers, British Navy, are included officers of executive and engineer branches, and 14 specialists, i. e., 2 lieutenant commander telegraphists; 2 lieutenant telegraphists; 3 lieutenant signals; 1 lieutenant regulating; 2 lieutenant ordnance; 4 lieutenant electrical. In the Japanese Navy are included officers of executive and engineer branches and officers in ordnance, construction, engineering construction, and hydrographic branches. 110 officers lent from Royal Navy to Dominion Navies are included.

² British Navy has no rank corresponding to ensign. The total shown is number of midshipmen at sea who are classified in British Navy estimates as subordinate officers, and who perform duties similar to those of ensigns, United States Navy.

³ Paymaster midshipmen at sea perform same duties as ensigns, Supply Corps, United States Navy.

⁴ Naval constructors are not officers in British Navy, but perform same duties as naval constructors, United States Navy, and are paid from Navy votes. See last column for total number which includes 11 shipwright lieutenants, who are classed herein as constructors. See total column.

⁵ Civil engineers are not officers in British Navy, but perform same duties as civil engineers, United States Navy. See total column.

⁶ Information as of Sept. 1, 1924. Includes 391 midshipmen at sea. Does not include 879 special service officers who are listed below in Table B. Does not include 260 civilians of commissioned officer rank to and including commander, who perform naval duties.

Note: The number of midshipmen under training is as follows:—United States, 1,976; Great Britain, 626; Japan, 771.

Comparative table showing division of commissioned warrant and warrant officers in accordance with rank

| Corps | Commissioned warrant | | | Warrant | | | Total | | |
|-------------------|----------------------|---------------|------------------|---------------------|---------------|--------|---------------|---------------|--------|
| | Great Britain | United States | Japan | Great Britain | United States | Japan | Great Britain | United States | Japan |
| Line..... | ¹ 671 | 616 | 770 | 1, 042 | 293 | 1, 340 | 1, 713 | 909 | 2, 110 |
| Medical..... | 4 | 114 | 13 | 14 | 26 | 39 | 18 | 140 | 52 |
| Band..... | | | 7 | | | 11 | | | 18 |
| Supply..... | 24 | 99 | 58 | 76 | 201 | 120 | 100 | 300 | 178 |
| Instructor..... | 38 | | | 155 | | | 193 | | |
| Construction..... | ² 42 | 106 | 31 | ³ 91 | 11 | 51 | 133 | 117 | 82 |
| . Total..... | 779 | 935 | ⁴ 879 | ⁵ 1, 378 | 531 | 1, 561 | 2, 157 | 1, 466 | 2, 440 |

¹Includes 22 mates who rank with sublieutenants; also 9 commissioned ordnance officers and 17 commissioned electrical officers.

²Commissioned shipwrights.

³Warrant shipwrights.

⁴Rated in Japanese Navy as special service officers and have rank as lieutenants, sublieutenants, first and second class. They correspond to ex-temporary officers who were given permanent commissions in the United States Navy.

⁵Includes 29 warrant officers lent to Dominion navies.

Dominion navies.—Comparative table showing division of commissioned and subordinate officers in accordance with rank

| Corps | Captain | | | Commander | | | Lieutenant commander | | | Lieutenant | | | Lieutenant (junior grade), sublieutenant | | | Midshipmen, at sea | | | Total | | | Grand total |
|------------|-----------|--------|-------------|-----------|--------|-------------|----------------------|--------|-------------|------------|--------|-------------|--|--------|-------------|--------------------|--------|-------------|-----------|--------|-------------|-------------|
| | Australia | Canada | New Zealand | Australia | Canada | New Zealand | Australia | Canada | New Zealand | Australia | Canada | New Zealand | Australia | Canada | New Zealand | Australia | Canada | New Zealand | Australia | Canada | New Zealand | |
| Line | 1 | | | 11 | 1 | | 18 | 7 | | 79 | 40 | | 33 | 6 | | 35 | | | 177 | 54 | | 231 |
| Medical | | | | 2 | | | 2 | 2 | | 15 | | | | | | | | | 19 | 2 | | 21 |
| Dental | | | | | | | 1 | | | 3 | | | | | | | | | 4 | | | 4 |
| Supply | | | | 2 | | | 6 | | | 17 | 1 | | 5 | 2 | | 3 | | | 33 | 3 | | 36 |
| Chaplain | | | | | | | | | | | | | | | | | | | 9 | | 1 | 10 |
| Instructor | | | | | | | 3 | | | 2 | | | | | | | | | 5 | | | 5 |
| Total | 1 | | | 15 | 1 | | 30 | 9 | | 116 | 41 | | 38 | 8 | | 38 | | | 247 | 59 | 1 | 307 |

Dominion navies.—Comparative table showing division of commissioned warrant and warrant officers

| | Dominions | | | Total |
|-------------|--------------------------------|---------|----|-------|
| | Commissioned warrant and mates | Warrant | | |
| Australia | 1 | 31 | 02 | 93 |
| Canada | | 1 | 4 | 5 |
| New Zealand | | 0 | 3 | 3 |
| Total | 32 | 69 | | 101 |

¹ Includes 6 mates.

Note.—Tables C and D show distribution of Dominion officer personnel. They do not include officers, active, retired, and emergency, lent from Royal Navy to the Dominion Governments. They do include Dominion officer personnel lent to the Royal Navy. The total officer personnel from all sources of the Dominion navies is as stated on p. 47.

Complements of type ships in certain classes

UNITED STATES

| Name | Class | Date of completion | Displacement | Speed | Guns—main battery | | Complement | | | Remarks |
|-----------------|--|--------------------|--------------|-------|-------------------|-----------------|------------|-------|-------|---|
| | | | | | Num-ber | Size | Offi-cers | Men | Total | |
| | | | | | | | | | | |
| Colorado..... | BB. (battleship, first line)..... | 1923 | 32,600 | 21 | 8 | 16"—45 cal..... | 170 | 1,203 | 1,273 | 95 per cent of full war complement. Flagship, 95 per cent of full war complement. 95 per cent of full war complement. |
| California..... | BB. (battleship, first line)..... | 1921 | 32,300 | 21.46 | 12 | 14"—50 cal..... | 170 | 1,203 | 1,273 | |
| Utah..... | BB. (battleship, first line)..... | 1911 | 21,825 | 21.04 | 10 | 12"—45 cal..... | 170 | 1,116 | 1,186 | |
| Richmond..... | CL. (light cruisers, first line)..... | 1923 | 7,500 | 33.7 | 12 | 6"—53 cal..... | 230 | 429 | 459 | 93 per cent of full war complement. |
| Langley..... | OCV. (plane carrier, second line)..... | 1922 | 12,700 | 14.99 | 4 | 5"—51 cal..... | 26 | 328 | 354 | |
| Peary..... | DD. (destroyer, first line)..... | 1920 | 1,215 | 35.06 | 4 | 4"—50 cal..... | 8 | 106 | 114 | |
| S-49..... | SS. (submarine, first line)..... | 1922 | 993 | ----- | 1 | 4"—50 cal..... | 4 | 40 | 44 | |

¹ 52 line, 6 staff, 12 warrant.

² 17 line, 3 staff, 10 warrant.

³ 11 line, 5 staff, 10 warrant.

BRITISH EMPIRE

| Name | Class | Date of completion | Displacement | Speed | Guns—main battery | | Reduced sea complement | | | Sea complement—total officers and men ⁵ | Remarks |
|----------------------|--|--------------------|--------------|-------|-------------------|---------------|------------------------|------------------|-------|--|------------------|
| | | | | | Number | Size | Officers | Men ⁴ | Total | | |
| Queen Elizabeth..... | BB. (battleship, first line)..... | 1915 | 27,500 | 25 | 8 | 15"-42 cal. | 70 | 1,210 | 1,280 | 1,299 | Flagship. |
| Warspite..... | BB. (battleship, first line)..... | 1915 | 27,500 | 25 | 8 | 15"-42 cal. | 67 | 961 | 1,028 | 1,234 | |
| Marlborough..... | BB. (battleship, first line)..... | 1914 | 25,000 | 21 | 10 | 13.5"-45 cal. | ----- | ----- | ----- | 1,193 | |
| Repulse..... | CC. (battle cruisers, first line)..... | 1916 | 26,500 | 31.5 | 6 | 15"-42 cal. | 65 | 976 | 1,041 | 1,242 | W and V classes. |
| Caledon..... | CL. (light cruiser, first line)..... | 1917 | 4,120 | 29 | 5 | 6" | 27 | 400 | 427 | 448 | |
| Hermes..... | OCV. (plane carrier, second line)..... | 1924 | 10,950 | 25 | 6 | 5.5" | 29 | 544 | 573 | ----- | |
| Wild Swan..... | DD. (destroyer, first line)..... | 1919 | 1,325 | 34 | 4 | 4.7" | 6 | 110 | 116 | 130 | |
| L-52..... | SS. (submarines, first line)..... | 1921 | 960 | 17.5 | 2 | 4" | 5 | 37 | 42 | 42 | |

⁴ In addition to the men shown under reduced sea complement, there are a number of service boys afloat for sea training. These are not shown in the complements but they add materially to the ship's operating force. On October 1, 1924, there were a thousand of these service boys who had completed shore training and were embarked in seagoing ships as "supernumeraries" for sea training. Source of information, British Admiralty Report, "Personnel of the Royal and Dominion Navies as of October 1, 1924," p. 15.

⁵ Source of information, admiralty publication, "Particulars of British war vessels showing principal dimensions, armament, speed, etc."

Complements of type ship in certain classes

JAPAN

| Name | Class | Date of completion | Displacement | Speed | Guns—main battery | | Complement | | | Remarks |
|---------------|--|--------------------|--------------|-------|-------------------|------|------------|-------|-------|---------|
| | | | | | Number | Size | Officers | Men | Total | |
| Mutsu..... | BB. (battleship, first line)..... | 1921 | 33,800 | 23 | 8 | 16" | 73 | 1,244 | 1,317 | |
| Kongo..... | CC. (battle cruiser, first line)..... | 1913 | 27,500 | 27.5 | 8 | 14" | 73 | 1,244 | 1,317 | |
| Sendai..... | CL. (light cruiser, first line)..... | 1921 | 5,570 | 34 | 7 | 5.5" | 36 | 405 | 441 | |
| Hosho..... | CCV. (plane carrier, second line)..... | 1922 | 9,500 | 25 | 4 | 5.5" | 40 | 359 | 300 | |
| Namikaze..... | DD. (destroyer, first line)..... | 1922 | 1,345 | 34 | 4 | 4.7" | 10 | 114 | 121 | |
| No. 27..... | SS. (submarine, first line)..... | 1921 | 900 | 18 | — | — | 7 | 35 | 42 | |

Note.—The Japanese Navy enlisted personnel has been increased from 53,274 on October 1, 1923, to 65,401 on October 1, 1924.

ARGENTINA

PROPOSED INSTALLATION OF A NAVY SHIPYARD AT DÁRSENA NORTE

December, 1924

[From the Argentine press]

On November 19, 1924, the members of the general board of the ministry of marine met in one of the chambers of that department, said board being constituted by the chief of staff and of the directors general, under the chairmanship of the minister, the chief of the secretary's office of the ministry of marine acting as secretary of the meeting.

The meeting was for the purpose of listening to the reading of a plan presented for the consideration of the said functionaries by Gen. Guy Livingstone, representative of the important British firm of Vickers, with regard to the installation of several shipyards in the port of Buenos Aires, or at such a point as the Government may deem more convenient.

The details of the project having been very fully set forth, those present followed the reader very attentively, it having been previously stipulated that, until a decision be reached according to the judgment of the board for the study and final resolution of the project, the corresponding technical offices are to make a complete study of the same.

In the meantime it has been thought best to keep the information in discreet reserve, but it may be said that the firm of Vickers reproduces a good part of the plan presented more than 14 years ago to the national Government and to that of the Province of Buenos Aires for the installation of similar shops in Rio Santiago, with a series of improvements.

The consulting board of the minister of marine met on December 5 in the office of the minister of marine under the chairmanship of the latter, there being present the chief of the general staff, Vice Admiral Daireaux; the director general of personnel, Vice Admiral Moreno; Vice Admiral Fliess; the director general of material, Captain Renard; and the chief of the naval arsenal, Buenos Aires, Captain Page; the chief secretary of the minister of marine, Captain Casal, acting as secretary of the meeting.

At the meeting the principal subject under discussion was the proposal presented by an English firm for the installation of a shipyard and other dependencies of that nature, taking as a basis the present docks and shipyards of the navy in the Darsena Norte, of which we made mention at the time.

Each one of the above-mentioned director generals had been previously instructed to make a personal study of the project, and as a result of their studies they were to present their report in yesterday's meeting.

Although this matter is still in its incipency and is being kept more or less secret, it has been made known that there is a certain coincidence of opinion regarding the convenience of said proposal, although the latter differs from the opinions of our Government and naval authorities on the subject.

Consequently, according to the same sources of information, the petitioners will be answered in the sense that they should modify their proposal, endeavoring to make it coincide with the opinions of the Government and of the navy, after which the matter will be considered definitely.

General Livingstone left for England on December 9 without making any public statement in regard to the progress of this project.

It will probably be discussed in Congress next year.

BRAZIL

NAVAL FORCES FOR 1925

[From Brazilian press.]

1. By congressional decree the National Congress of Brazil authorized and the president sanctioned that the naval force for 1925 shall consist of the following:

1. Of officers of the navy and the annexed classes of their respective grades.

2. Of petty officers of the navy in conformity to their respective classes and grades.

3. Of a maximum of 100 students in the naval school.

4. Of 5,500 sailors of the national corps of the navy, distributed in their various classes and specialties.

5. Of 2,315 sailors of the national corps of the navy for machinery service, distributed in their various classes and grades.

6. Of 1,500 sailors of the naval regiment, including a company for service, at the military jail on Cobras Island, for the guarding and feeding of prisoners kept there.

2. The time of service in the navy shall be: (a) Two years of instruction for those drawn by draft; (b) three years for those engaged, reengaged, or volunteers; (c) nine years for those coming from the apprentice or grumete school counting from the date of entry in the national corps of the navy.

3. Service given by instructors at the aviation or radio telegraphy schools, as well as students at the aviation school, shall be considered as service on board a war vessel for effects of promotion, as well as those officers and petty officers and sailors at the same schools who are in active duty in their various specialties; as day of voyage on board a war vessel for those days of flight.

There shall be counted as a day of flight a minimum period of 30 minutes in each 24 hours.

When treating of a continuous flight under orders each period of two hours consecutively shall be equivalent to a day of voyage, computing equally those fractions of hours corresponding only when this time exceeds two hours consecutively.

4. Officers of the reserves who have permission to work for the merchant marine or other employers of industry relating to the navy, shall count one-half the time of service that exceeds two years, beginning to lose antiquity after this period.

5. The auxiliary military society is permitted to create in this capital (meaning Rio de Janeiro) a school of pilots and machinists for the merchant marine, obeying the rules established by the law for such schools.

The school shall have proper life and the funds necessary for the maintenance of the school shall be controlled by the minister of marine, as well as the choosing of the students, the entry tax, and the frequent examinations that will be given out in tables by the ministry of marine.

All regulations, teaching programs, and examination papers for the various studies, as well as the régime for the school organized by the society, shall be by approval of the minister of marine.

FRANCE

EXPERIMENTAL AIRCRAFT

December, 1924

The Schneider 10 type M bimotored all-metal monoplane is the second bomber to be built by the Schneider works, is the most interesting airplane exhibited at the Ninth Aeronautical Salon. It is built entirely of a metal, called "alferium," which is a new light alloy of high resistance produced by the Schneider works exclusively.

The construction is most unusual. It consists of a single wing with a span of 60 feet, which is supported by two entirely separate fuselages. The center section of the wing carries a nacelle on its upper surface in which are found the pilot's cockpit and two gunners' cockpits, one forward in the nose of this built-up nacelle and one directly above the center of the wing. The engines are set each one in a separate nacelle just forward of the leading edge of the wing. Under each engine nacelle there is a single wheel carried in a fork type landing gear. The stream lining of the engine nacelle is carried down to almost entirely cover the wheel. This results in giving the airplane an enormously wide tread, which must be approximately 18 feet. The wings, the horizontal stabilizer, and all controls of the tail group are covered with corrugated sheet alferium. The fuselages and the engine cowling are covered with noncorrugated sheet alferium. The gasoline tanks are situated directly behind the landing gear of each engine group and are detachable in flight. Provision is for installation of radio and photographic apparatus.

The power plant consists of two 400-horsepower Lorraine engines. A pair of small free-air radiators is provided for each engine, one on each side of the engine just in rear of the engine under the leading edge of the wing. Six machine guns are provided, two of which fire downward from the rear gunner's cockpit. All controls are of rigid type, no cable being used anywhere in this machine.

The measurements of this machine are as follows:

| | | |
|---|------------------|------------|
| Span | feet.. | 60. 6 |
| Length..... | do..... | 38. 4 |
| Height..... | do..... | 10. 8 |
| Total surface..... | square feet.. | 613. 5 |
| Weight, empty | pounds.. | 5, 842 |
| Useful load | do..... | 2, 204 |
| Total weight, flying order..... | do..... | 8, 046 |
| Estimated performance—speed at 16,404 feet..... | miles per hour.. | 136. 7 |
| Ceiling | feet.. | 22, 965. 8 |

FRANCE

NAVAL NOTES

December, 1924

Launching of destroyer Trombe

The destroyer *Trombe* (1,400 tons) was launched at Bordeaux, December 27, 1924.

Launching of submarine Marsouin

The submarine *Marsouin* (1,100 tons) was launched at Brest, Finistère, December 27, 1924.

GERMANY

NAVAL NOTES

January, 1925

[From the German press]

Activities of the German Navy during December

The end of December, the cruiser *Thetis* was placed out of commission and replaced by the *Nymphe* with the same crew, and designated flagship of the commander of the light naval forces of the Baltic. The front portion of the *Nymphe* has been made over like that of the *Berlin*. The *Zieten*, former mine sweeping boat, was put in commission the end of September for the protection of fisheries. Up to now this work has been a sort of extra duty: the designation of a boat for this particular work corresponds to pre-war conditions and the needs of the fishing industry. The mine sweeper *M-134* went up as far as the northern Arctic on one of its last trips. The sailing school-ship *Niobe* is laid up for repairs with reduced crew.

The cruiser *Berlin* left Kiel November 1 for its practice cruise: it passed the English Channel on the 3d and after encountering heavy storms in the Bay of Biscay, arrived in Santa Cruz de Teneriffe on November 10. On December 3 it reached St. Thomas (West Indies). The *Amazon* left for a training cruise in the Baltic, touching Stettin and Königsberg. In November, a course for chief gunners was held at the torpedo school, the boats of the I Half Flotilla took part in the firing practice, the lineship *Elsass* and the cruisers *Thetis* and *Hamburg* acting as targets.

GREAT BRITAIN

H. M. S. FURIOUS.—GENERAL ARRANGEMENT

December, 1924

On a recent visit to Devonport Dockyard an opportunity was had to view H. M. S. *Furious* from a distance. The vessel is in the fitting out basin and a brief broadside and a bow view was had. The

escort was quite frank in explaining that the *Furious* was considered secret and could not be visited. However, the ship is too conspicuous to be concealed from anyone visiting other ships in the dockyard.

The information of the sketch previously submitted is partially confirmed. Sketch below is approximately to scale of what was seen. The general outline of the vessel is certain; the numbers of rows of ventilators or scoops (4) is certain; the total number of ventilators is uncertain; the alternate pointing aft and forward of scoops is certain, but the two observers are uncertain as to whether the top row faces aft or forward; the four rectangular openings aft of the ventilators are certain; two guns are certain and there appeared to be shields near them for two more.

Flying deck.—It is, therefore, confirmed that the *Furious* is to be a flush deck vessel with smoke led aft. It appeared, from the slight amount of bulge above the water line, that the original shallow bulges of the *Furious* class have been retained. From the old paint on the side, the armor belt of the old *Furious* seems to have been retained. The old ship seems to have been cut down to the main deck and new work put on that. The new flying deck is about two-deck heights (at least 14 feet) higher than the old forecastle flying-off deck which is retained. The old flying-off deck may be no longer used for flying purposes and now seems only to give clear view forward from the "bridge," just under the forward end of the new flying-off deck. A gun on a pedestal mount was seen on each wing of this "bridge," trained ahead. There was no indication of any opening from the hangar space leading forward to the forecastle deck or old flying-off deck. It is of course possible that such an opening is actually present, but under the shadow of the overhanging curved forward edge of the top flying deck nothing could be distinguished. The possibility remains, however, that the smaller planes (fighters) may be pushed out from the hangar directly on to the forecastle.

The top flying deck is of the proportions shown in sketch. The forward edge and the sides of the forward portion are curved down through an arc of nearly 90 degrees. Certainly such great curvature is not mechanically useful for flying-off operations. It is most likely provided in order to prevent a vertical current of air flowing over the deck edge.

Aft of the curved edge portion which may be called the "flying off" region, the deck edge is square and fitted with what appear to be the usual British palisades—4-inch timbers some 6 feet high. The appearance of the partially erected palisades is shown on sketch.

The after end of the flying deck overhangs as shown with structural bracing and with the extreme edge curved down.

Smoke disposal.—It is evident that the smoke goes aft as previously reported. No view was had of the stern, but it is obviously an open stern resembling the *Hermes* and *Argus*.

The side of the ship is pierced by 4 rows of what appear to be round holes fitted with externally projecting air scoops. The scoops for each row face the same way, but the direction alternates from row to row. The general arrangement of scoops is shown in the sketch. The hole is between 2 or 3 feet in diameter. How far the scoop projects away from the side could not be estimated from the brief glimpses seized, but from the shadow one would judge that the cross section of the scoop was not semicircular but pulled out farther to catch more air. The number of "ventilators" or holes with scoops shown on the sketch is uncertain. The number on one side is something between 50 and 70, giving an intake area one side of some 150 to 200 square feet. Attention is invited to the fact that these ventilators are evenly spaced and begin well forward of where the old smoke pipe of the *Furious* was located.

Near the rear edge of the side of the hangar, aft of the last scoops, are 4 rectangular holes without scoops. These holes are some 40 square feet each, or a total for the ship of $8 \text{ by } 40 = 320$ square feet. The smoke pipe of the old *Furious* was about 260 square feet in area.

There are two possibilities as to the purpose of these rectangular openings. The first is that they are air intakes to blowers discharging air at high velocity sternwards into the horizontal smoke pipes. This would be due to a desire to throw the smoke well clear of the stern of the ship. Diluting the smoke with cold air should also work against its natural tendency to rise. Tests at the Washington Navy Yard with a wind tunnel model of the *Lexington* showed a tendency of a pocket of turbulent air to hang behind the ship. With the "open stern" type this air wake was more pronounced than with the faired in type of stern finally adopted. It would be a very serious matter if hot and colored gases were discharged into such a "back water" of the air behind the stern, because the ship would then have this smoke permanently hanging at the stern. The smoke would naturally rise and block the incoming aeroplane's view of the landing deck.

The second possibility as to the purpose of the four large rectangular openings in each side is that the smoke is actually discharged through these holes by blowers. The object of such discharge would be to project the gases at high velocity well clear of the ship.

In a previous report from an entirely independent source, it was learned that fine gases are discharged at the stern at 45 degrees (away from the ship) at high velocity. It is consistent with this information if the rectangular openings are the mouths of discharge flues.

A foreign officer in London remarked that he "had seen four powerful smoke blowers" for the *Furious* at a manufacturer's works. There are eight of the large openings, and one would expect to hear of eight blowers.

As final evidence that blowers must be provided, it is recalled that two discharge blowers are fitted on the *Argus* at the after ends of the two smoke ducts and have been reported as necessary to get the smoke out. Also the problem of getting smoke clear of the stern has been a bother to the *Argus*, and at one time a scheme was in use for projecting the smoke to the lee side by manipulating some experimental baffles.

All things considered, it is concluded that there are blowers at the after ends of the smoke ducts, and that smoke is discharged from the rectangular openings which have area enough for the purpose.

Ventilators.—The arrangement of air scoops renders it likely that they are used to cool the space surrounding the horizontal smoke ducts. No information is available as to boiler room locations on the *Furious*, but it is likely that the forward boiler room is well forward of the old funnel and that the present air scoops begin over the forward boiler room.

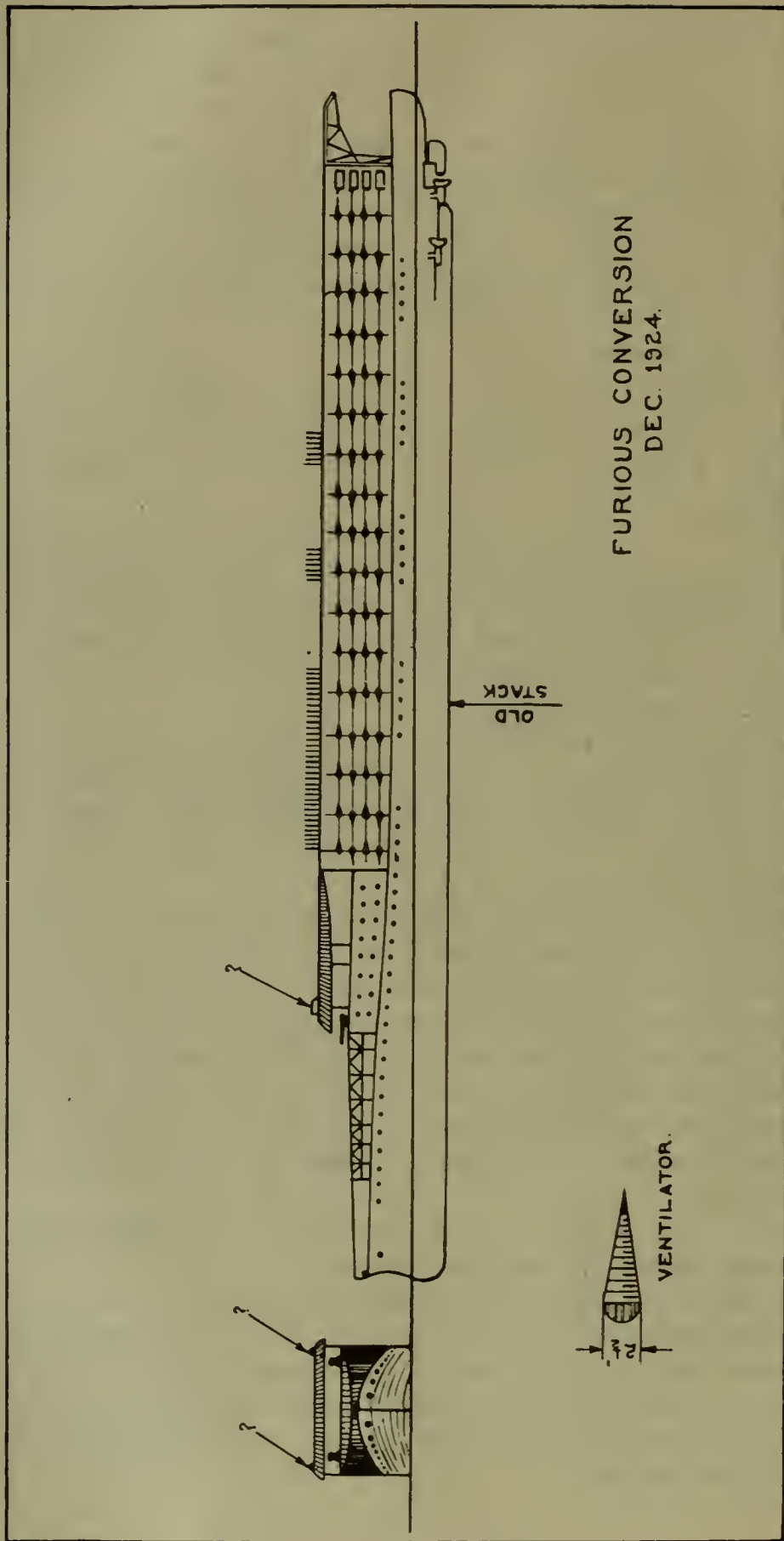
There appeared to be no openings in the side for air supply to boilers and it is of course possible that some of the ventilators forward are air intakes for the forced draft blowers. These could, however, draw air from the interior of the hangar space or from openings in the top deck.

Previous correspondence independently reported side ventilators for cooling but only contemplated two rows instead of four observed. The peculiar arrangement of two rows of intake and two rows of discharge openings must reflect the arrangement of smoke ducts.

It is possible there are two smoke ducts on one side of the ship with hangar space between them serving as a shelf for small planes. Around each duct would be a casing and the air in the casing changed by a pair of ventilators. However, this is speculative and uneconomical.

There was no apparent line of scuppers which would indicate that water was used in the ducts in quantity.

An alternative scheme is suggested by the note in Jane, 1924, that special ventilation is provided on the *Hermes* for the hangar to minimize the risk of fire from petrol fumes. Since such fumes are heavy, one would have the exhaust from the hangar low and the intake high, and use only the two middle rows of ventilators to cool a single smoke duct.



Armament.—The armament was surprising by reason of its absence. Only two guns could be seen, those on the wings of the “bridge.” Behind them on each side under the flying off deck was a cylindrical structure which might be single or twin gun turret. No guns were fitted in these cylinders, however. The side showed no signs of gun houses, recesses, sponsons, nor, in fact, is there any place for guns or boats except under the flying off deck and under the stern overhang of the flying on deck. Reference (b) reported 5 guns on a side. It is possible the battery may have been left undecided for the present and that a battery will be worked out later if the ship is found successful.

Near each forward outboard corner of the flying off deck was a fish-shaped erection some 8 feet long and possibly 3 or 4 feet thick. (See sketch.) It is known that the British arresting gear requires an operator to control the air pressures after the plane has been caught in the gear. As this is a delicate operation, it is obvious that the arresting gear operator should have his hand on the air valve and not be required to shout orders to some one below. Possibly the fish-shaped erections are stations for the flight officer and (or) the arresting gear operator. The later hypothesis is shaky, as the arresting gear is presumably in the after part of the flying deck.

Hangar height.—The main hangar aft is at least 40 feet high. This is obviously enough height to house two tiers of planes using a shelf at the sides, allowing for a clear central passage. The smoke ducts on one side require something like 150 square feet of cross sectional area.

“*Courageous.*”—The *Courageous* is in the yard stripped to the main deck. It was stated by the officer acting as guide round the dockyard that the *Courageous* would not be made flush deck. This information agrees with that previously obtained from reliable sources.

GREAT BRITAIN

H. M. S. VINDICTIVE

December, 1924

During a recent visit to the Chatham Dockyard, inspection was made of H. M. S. *Vindictive*, which vessel is undergoing refit preparatory to being assigned to the China station. Although it has been announced in the papers that this vessel is no longer a plane carrier and is being refitted as a light cruiser similar to the *Hawkins*, the

vessel is fitted with a very commodious hangar space on the main deck forward of the foremasts, as indicated in "Jane's Fighting Ships," 1924. This hangar space is large enough to accommodate 8 or 10 planes with their wings folded, and has recently been modified by having its head room increased by about 4 feet, raising the upper deck level by this amount. At the extreme forward end of the hangar space an experimental catapult was just being installed. Very little could be learned except that it was to be air operated and it was understood that the design was not yet completed, and to date results of trials on shore of this type of catapult had not been successful. In the center of the hangar roof is a very large hatchway through which planes are raised to the flying deck. On the outboard edge of the starboard side of the flying deck a large king post for a boom is fitted to handle the planes. This permits hoisting planes from hangar space to the flying deck, putting them on the catapult or picking them up from the water on the starboard side of the ship, but there is apparently no provisions made for picking up planes from the water on the port side of the ship.

I was informed that, although the squadron of airplanes to be assigned to the *Vindictive* had not yet been completely organized, it had been given a number and was in process of formation. The type of planes could not be obtained, but from a view of the catapult, it is not believed that the planes are of a very large size, at the most 3-seater spotting planes.

The arrangements for battery control, torpedo control, and in general all fire-control arrangements were similar to those on the D and E class cruisers which have been reported upon, and there was no evidence of any unusual features, with the exception that two 15-foot Barr & Stroud range finders were being mounted on either side of the upper bridge deck in the positions from which the A. A. and torpedo batteries were controlled. It should be noted that the *Vindictive*, in addition to her three 4-inch A. A. guns, is fitted on either side of the lower bridge with two 2-pounder automatic guns, fitted for high-angle fire. No sign of any A. A. director could be found. There are two fixed, above-water torpedo tubes on either side of the mainmast, the tube being protected by hinged cover plates which are opened when the torpedoes are to be fired. The torpedo tubes are fitted with air impulse for launching the torpedoes, and I was informed that cordige charges were not used for this purpose.

It is understood that upon commission the *Vindictive* will carry out quite extensive trials with the catapult before proceeding to her new station.

GREAT BRITAIN

H. M. S. ADVENTURE

December, 1924

The cruiser-mine layer *Adventure* was seen at Devonport Dockyard recently where she is building. Permission to go on board was refused, but it was permitted to view the hull from the pier where she is now completing.

Jane, 1924, gives the following particulars, which are supposed to be given out by the admiralty. Other information in Jane's possession was censored: (P. p. 500) beam 58; draft, mean, 19½; length (o. a. 520), (over bulges); displacement, 7,260 tons. Parsons turbines with Diesel engines for cruising purposes; 4 screws; specially adapted for mine laying.

The above particulars from Jane appear to be correct so far as the appearance of the ship goes. The lines are relatively full and high speed out of the question in spite of reports. The officer acting as guide to the dockyard in answer to a question "thought" the speed would be 30 knots. Note that the *Emerald* has—

| | | |
|-------|--------|-----------------------------------|
| L=535 | B=54.5 | D=16.5 as against; |
| L=500 | B=58 | D=19.5 for the <i>Adventure</i> . |

The four-screw installation reported by Jane is correct, as a wing propeller could be seen from the dock side.

It had been learned previously from a civilian engineer that the *Adventure* is to have two 3,000 B. H. P. Diesel engines.

The bulge referred to in Jane could be seen partially as the ship was at light draft. The full load water line draft marks were noted at 20 feet forward and 19 feet aft. The top of the bulge comes to this water line amidships. The bulge is fairly shallow.

The deck line has an abnormal sheer and the bow is high and flaring, resembling the *Emerald* class to an exaggerated degree.

The stern is chopped off square like a motor boat with two large mine doors.

GREAT BRITAIN

AGAMEMNON BOMBING TRIALS

(A) August 1, 1922

[Source: Eye-witnesses]

The admiralty extended invitations to naval attachés, air attachés, and representatives of the leading newspapers, to witness the fol-

lowing "Program of dummy bombing and machine gun trials," off Portsmouth, August 1, 1922:

| Run No. | Height | Attackers | Type of attack | Number of bombs | Target | Time |
|---------|---------------------|------------------------------|----------------|-----------------|-----------|--------------------|
| 1----- | Feet 8,000 | 4 DH 9A | Individual | 24 each | Agamemnon | a. m. 0900-1030 |
| 2----- | P o i n t blank. | 4 Snipes | do | 12 each | do | 1030-1130 |
| 3----- | do | 6 Camels | Machine gun | do | do | 1130-1230 |
| 4----- | 8,000 | 4 DH 9A | Individual | 24 each | do | p. m. 1400-1530 |
| 5----- | 8,000 | 2 horsepower and 1 other. | do | 32 each | do | 1530-1700 |

These exercises were carried out to the eastward of the Isle of Wight, 15 to 30 miles from the shore station from which the planes proceeded. The weather was particularly favorable—bright sunshine; westerly wind force, 4 to 5; the fast moving scuds at times made it difficult to keep track of the 4 DH. 9A planes, operating at an altitude of 8,000 feet.

The old battleship *Agamemnon*, with turrets removed and otherwise stripped, was used as a target. All hands left her just prior to starting the program, and she was operated by radio from a destroyer about a thousand yards astern. Four other destroyers and a tug surrounded the *Agamemnon* at approximately the same distance from her, evidently to plot fall of shots, as well as to keep water traffic well cleared. During all the runs the *Agamemnon* was maneuvered 90 degrees or more. Apparently the *Agamemnon* functioned perfectly during these trials, though I understand that during the recent exercises witnessed by the King, steering control jammed causing some trouble. During the exercises the *Agamemnon* maintained a speed of from 10 to 15 knots, except during the last run when, in approaching her anchorage, steam was apparently allowed to run down, so that she barely maintained steerage way.

The attacking planes approached in groups from the direction of Gosport, and usually passed over the target before attacking. Ten to twenty minutes elapsed from the time they were sighted until the first bombs were dropped. In the case of the two Handley Page machines, over half an hour was taken by them to gain the altitude, and after getting into approximate position, their movements were very deliberate.

The program was carried out as laid down, excepting that one of the De Haviland planes fell before making the attack in the first run. A destroyer picked up the crew; there were no casualties. In the last run, a Vimy plane accompanied the two Handley Pages, but the Vimy dropped only a single pair of bombs. During this last run, a small De Haviland plane maintained a position just above

the attacking Handley Pages, evidently to witness the operation of the attacking planes, rather than results obtained. This swift moving, small plane in this position was a matter of general comment, particularly the facility with which such planes could gain an attacking position with respect to the heavy, slow-moving bombing planes.

The position assigned the *Canterbury*, from which our observations took place, was 3,000 yards abeam of the target ship. Generally the point where the bombs struck was visible, though frequently a destroyer intervened. From our position, it appeared that there were few bombs that struck beyond a ship's length from the target; and most of them appeared to strike within 50 yards of the vessel.

Taken by runs, my observations were as follows:

Run No. 1.—The 4 DH. 9A approached in formation, took up same course as target, a single bomb being dropped as they passed over the target. Planes then attacked singly, using the same or reverse course of target vessel at first, and then oblique—right angle courses. Two direct hits were made, one on forecastle and one on quarter deck. Many bombs apparently dropped close alongside; very few were wide of target. This run lasted over an hour, in the latter part of which the target changed course about 90 degrees. One of the attacking planes fell and was picked up by a destroyer.

Run No. 2.—The four Snipes approached rapidly and began to attack within ten minutes of being sighted, and completed the attack within ten minutes more. The Snipes were in close formation and approached at an angle of 45 degrees from vertical in making attacks. Individual attacks were made apparently with a great deal of assurance, approaching the vessel to within 100 yards and they delivered their successive attacks very rapidly. Generally they took up the course of the target vessel, but often took an oblique course. The bridge and foremast appeared to be the principal objects aimed at, and were frequently struck, as well as other parts of the ship. Only 3 out of the 48 bombs failed to make a direct hit on the target.

Run No. 3.—The Camels approached from ahead, or on the bow, opened fire at approximately a thousand yards, and continued fire until reaching a point where it was necessary to turn. They approached the target at an angle of about 30 degrees from the horizontal. Canvas screens stretched around the bridge and foremast were evidently the points of aim. The accuracy of fire could not be observed from the *Canterbury* other than a considerable number of shots were seen to strike the water close to the ship's side.

Run No. 4.—During the first part of this run the speed of the target was apparently 15 knots, and her course was changed fre-

quently during the run. The planes commenced the attack about ten minutes after being sighted. The course of the planes during the attack was generally the same as the target, but some of the planes took oblique or right angle courses, and seemed equally successful in making hits. Six direct hits were made on the target and, with one or two exceptions, the other bombs dropped within a ship's length. The exercise continued for over an hour. Apparently a height of 8,000 feet was maintained.

Run No. 5.—As previously stated, the Handley Pages were half an hour or more commencing the attack after being first sighted. At first both planes in attacking took up the course of the ship. Later, one of the planes took a course approximately at right angles to the course of the target: this plane made two direct hits on the target, the only hits made during the run. During this run the target slowed to 6 knots and then to steerage way, and finally almost stopped, then started ahead slow again. This change of speed evidently delayed the attacking plane, which failed to drop a bomb on one occasion and on two other occasions the bombs dropped were farther from the target than any others during the day.

The 9-pound smoke bombs used during these trials appeared to be very satisfactory. The bombs, upon striking the ship, produced a great mass of white smoke, and usually, in striking the water, enough smoke was produced to clearly indicate the point.

As an indication of the importance of the trials, it may be noted that Captain Guest, the secretary of state for air, and Rear Admiral Chatfield, assistant chief of the naval staff, witnessed them from the destroyer *Winchester*, and Air Commodore Brooke-Popham from a flying boat. From comments made on board the *Canterbury* during the exercises, the naval attachés and air attachés regarded these trials as of considerably more interest and importance than they had anticipated from the program furnished by the admiralty. They, as well as the representatives of the admiralty and of the air ministry on board the *Canterbury*, appeared to be particularly well pleased with the results obtained. Evidently those that participated have been undergoing an extended course of training, including bombing from a high altitude. No one had any disillusion about the practice meaning anything other than accuracy of bombing a moving target that varied course and speed. This exercise evidently is one of a series that is being carried out jointly by the air ministry and the admiralty to provide data to support their respective claims before the committee of imperial defense. These other trials and tests are frequently alluded to in the Parliamentary debates, and

occasionally in the press, but no information in regard to them has been obtainable by any of the attachés.

The London Times of August 2 contained the following statement:

The prime minister is expected to make on Friday a statement upon the Government's decision with regard to the increased strength of the air force and on the question of control as affecting the units attached to the army and navy. The committee of imperial defense will hold another meeting to-day.

There has been considerable publicity given in the press recently to combined maneuvers in the English Channel between the fleet and squadrons of airplanes, and a great many inconsidered statements have been made in this connection which would tend to lead the reader to believe that some valuable experiments had been done. There was a belief, however, in this office, that the press were overstating the facts, and this belief has now been justified by an admiralty statement just issued in this connection, which is quoted herewith:

The exercise was in no sense novel, and was designed as a spectacle rather than as a critical experiment. Similar exercises have been carried out on several occasions during the past three years, and the results on July 7 only confirmed previous experience.

In order to afford practice to the torpedo airplane the fleet approached to within a few miles of the aircraft base in broad daylight, at low speed, on a prearranged day and at an hour signaled in advance to the aircraft. There was, therefore, no surprise attack, and the conditions were essentially unwarlike and unreal.

Moreover, the fleet offered an unresisting target to the aircraft, whose attack was undisturbed by any counter offensive action, whether by the interference of fleet aircraft, gunfire from the light cruiser and destroyer screens, or heavy, medium, and antiaircraft gunfire combined with splash barrages, from ships in the battle line.

In spite of these favorable conditions the number of hits obtained on the battle line was small and of minor tactical importance.

The following newspaper comment on the above is interesting:

If the exercise was merely a "spectacle" the careful secrecy would seem to have been superfluous. If the conditions were "essentially unwarlike and unreal," any confirmation of "previous experience" would seem absurd.

(B) July 31 and August 1, 1923

The *Agamemnon* was fitted with a radio directive control and its movements were directed by a destroyer distant about 1,000 yards. A circular giving the schedule of the trials was distributed and this circular contained the following information:

"AGAMEMNON" BOMBING TRIALS

[July 31 and August 1, 1923]

Object of the trials

1. The object of the trials from the naval point of view is to assess the average accuracy to be expected from high bombing at the present date, while from the R. A. F. point of view the object is to give practice in high bombing against a ship underway, though limited in speed and maneuvering ability: this is the most realistic condition which can be produced in peace time.

N. B.—It must not be assumed that the accuracy obtained in any single practice is representative of the true average accuracy.

The target

2. The *Agamemnon* will be under wireless control. A general line of advance is laid down for the runs, but subject to this, the officer controlling the *Agamemnon* is allowed to maneuver the ship as he thinks best, so as to produce action conditions as far as possible. The maximum speed in these trials will not exceed 14 knots.

The bombs used

3. The bombs used in these practices are only light practice bombs of small size which emit a puff of smoke on striking the *Agamemnon* or the water.

Records kept

4. Records are kept in vessels attending on the trials and also by observers in specially protected positions on board the *Agamemnon*.

Program of the trials

| | | | | |
|------------------|-----|------------------------|--------------------------------------|------------------|
| First day a. m. | (1) | 8,000 feet 4 DH. 9A.. | Individual bombing (8 runs). | |
| | | | Target <i>Agamemnon</i> , 9-10 a. m. | |
| | (2) | 8,000 feet 2 DH. 9A.. | Target <i>Agamemnon</i> (8 runs). | |
| | | | 10-11 a. m. | |
| First day p. m. | (3) | 14,000 feet 4 DH. 9A.. | Target <i>Agamemnon</i> (8 runs). | |
| | | | 12.30-1.30 p. m. | |
| Second day a. m. | (4) | 14,000 feet 4 DH. 9A.. | Target <i>Agamemnon</i> (8 runs). | |
| | | | 9-10 a. m. | |
| | (5) | 14,000 feet 2 DH. 9A.. | Target <i>Agamemnon</i> (8 runs). | |
| | | | 10-11 a. m. | |
| Second day p. m. | (6) | 8,000 feet 6 DH. 9A.. | Formation (8 runs). | 12.30-1.30 p. m. |

Third day to complete program if two days found to be insufficient, or for repeats if necessary.

The observers left Portsmouth Dockyard on H. M. S. *Champion* at 9 a. m., August 1, and proceeded to the vicinity of the trials off the Isle of Wight, the *Champion* taking up a position approximately 1,500 yards off the port beam of the *Agamemnon*. The wind was blowing about 35 miles an hour and the sea was very choppy. A flight of 4 DH. 9A. airplanes soon appeared at an altitude which appears to be about 8,000 feet. These planes were not flying in

formation and proceeded to pass over the *Agamemnon* in succession and dropped miniature bombs. Sea conditions were such that only about half of the splashes could be seen. The operation of individual bombing continued for approximately one hour and during this period the *Agamemnon* made three changes of course, each of which appeared to be about 35 to 45 degrees and appeared to make about three changes of speed. It was estimated that the maximum speed of the *Agamemnon* during the trials was 12 to 13 knots and the minimum speed 6 to 8 knots.

So far as could be observed, no direct hits were made and no bombs appeared to strike within 50 yards of the ship. Only 10 splashes were actually seen and the mean point of impact appeared to be about even with the stern and 25 to 50 yards to port. When the bombing first started the ship was making what appeared to be a speed of about 13 knots and the first 3 bombs were well astern of the ship. The ship then changed course to starboard and the next two bombs were well off the port quarter. The ship then slowed down and the course changed back to port and the next three bombs were off the starboard bow. The ship changed course to starboard again and speeded up and the last bombs were off the port quarter.

From the above it would appear that the bombers did not note either the changes of course or the changes of speed. At this point it clouded over and tests were discontinued for the day.

On account of the rather large and varying distance of the observer ship from the *Agamemnon* and of the fact that a great many bombs dropped were not seen to splash, it was impossible to obtain any really reliable data as to the accuracy of the bombing as a whole. Conditions were unfavorable for the bombers as passing clouds made it impossible for them to keep the target in sight during the entire approach. It appeared that the wind was blowing from a different direction at 8,000 feet than from the direction observed on the surface. No opportunity was given to see the bombing planes, but it was stated by one of the air force officers that the bomber occupied a sitting position and used a periscope type of sight, and that previous experiments had proved that the prone position using the improved Wimperis sight through the bottom of the fuselage gave better results.

The admiralty liaison officer in charge of the observers stated that the practices would be continued the following day, provided the majority of the observers so desired, but at the same time made it clear that such continuance beyond the two days originally anticipated would be a serious inconvenience. The observers therefore decided to return to London. As a matter of fact, it is not considered that the bombing trials, even if completely carried out as scheduled, would have been of any great professional interest, and

air force officers and officers of the fleet agreed that they were at a loss to understand just why all the attachés had been invited to see such a poor show.

The airplanes used were DH. 9A's equipped with Wimperis Mark 1. Modification A Bomb Sights and, it is presumed, the ordinary bomb racks now in use by the British. Miniature bombs were used. The ship bombed was the *Agamemnon* and its type, size, and armor, if desired, can be obtained from a register of foreign warships.

(C) July, 1924

2. In July, 1924, the *Agamemnon* was again bombed. Eleven runs were made, bombing from heights of from 12,000 to 5,000 feet: 114 bombs were dropped, none of which hit the *Agamemnon*. Nothing is known of the organization and training of the attacking force, but this can be inferred from the results obtained. The maneuvers were carried out by the two land squadrons that flew from their own airdromes, which were about 150 miles from where the ship was operating. The ship was underway and controlled by wireless. The weather was not very favorable and bombing from greater heights than 12,000 feet was impossible owing to clouds.

3. A copy of the report of this maneuver as forwarded from the air ministry follows:

The bombing exercises which were carried out in 1923, were continued in 1924, but under somewhat different conditions.

In addition to the practice which was to be obtained by bombing a ship underway, it was desired to exercise squadrons in bombing a target after a long cross-country flight in formation. For this purpose two land squadrons were employed and they flew from their own aerodromes which were about 150 miles from where the ship was operating.

It was hoped to practice bombing from greater heights than in previous years. This, however, was impossible owing to clouds. The atmospheric conditions were very bumpy and were against any accurate bombing being carried out.

The following were the results of the practices:

| Run | Type | Height | Bombs dropped | Hits on Agamemnon |
|------------|----------------|--------|---------------|-------------------|
| 1..... | Formation..... | 12,000 | 8 | 0 |
| 2..... | do..... | 9,000 | 3 | 0 |
| 3..... | do..... | 6,000 | 8 | 0 |
| 4..... | do..... | 6,000 | 8 | 0 |
| 5..... | do..... | 6,000 | 8 | 0 |
| 6..... | do..... | 6,000 | 16 | 0 |
| 7..... | do..... | 6,000 | 12 | 0 |
| 8..... | do..... | 8,000 | 16 | 0 |
| 9..... | do..... | 6,000 | 16 | 0 |
| 10..... | do..... | 6,000 | 16 | 0 |
| 11..... | do..... | 5,000 | 3 | 0 |
| Total..... | ..... | ..... | 114 | 0 |

GREAT BRITAIN

MALTA AS AN AIR BASE

December, 1924

The Malta press quotes from a British press dispatch as follows:

The Government has decided to make Malta a great air base. The seaplane base of Calafrana is being very rapidly developed, while the aerodrome of Hal Far, which offers excellent landing facilities and accommodation for airplanes, is to be greatly enlarged.

Two airplane carriers, the *Eagle*, the largest of the British Navy, and the *Hermes*, the only British carrier designed and built for this purpose, are now both stationed at Malta. Thus the small and antiquated carriers have been replaced by two large new ships, while the flying personnel on shore and afloat has been increased fourfold and is to be still further increased.

Apart from the value of Malta as an air port of call on the route to the Far East, these dispositions are extremely important, especially in view of possible developments in the Mediterranean.

The day, in fact, is not far distant when Malta will contain this country's chief overseas striking force.

I am unable to learn how much truth there is in this report, but the fact that it appears in the leading Maltese paper, and that the report has not been contradicted by the Government, would appear to indicate that plans are on the way to develop the present airship base (which the writer has personally inspected and which appears to be most efficient in every respect).

The decision in regard to the air base is in line with the reported intention on the part of the British Government to make Malta additionally powerful as a naval base by transferring numerous vessels from northern European waters to the Mediterranean.

Malta's strategic position in the Mediterranean has, from the time of the Grand Masters, endowed it with an importance which its relatively insignificant size and resources would at first sight scarcely seem to justify.

With the Egyptian crisis, the Spanish retreat in Morocco, communist propaganda in Tunis, and unsettled conditions in Tripoli, not to mention the various factors of unrest in that part of the Mediterranean littoral bordering the Aegean Sea and the eastern coast of the Adriatic—the Mediterranean situation would appear to be of prime significance in European politics; and the importance of Malta, due to its strong air base and naval establishment and its central position in the Mediterranean, can scarcely be overestimated.

GREAT BRITAIN

NAVAL NOTES

January, 1925

Fire-control tops, British capital ships

During a recent visit to Devonport it was noticed that the tops of capital ships (of the Atlantic Fleet in port for Christmas leave) had no obvious changes in form of fire-control tops. The gunnery officer of the *Ramillies* said they had turned in the splinter mattresses to the home yard, but carried the item on the books and had orders to take them on board again when wanted. He said this was the general situation in the fleet. Recommendations to rebuild the tops of light armor had not been approved and he expected no changes to be made on account of weight and cost involved.

Cruiser Effingham

It was noted on a visit to Devonport Dockyard that H. M. cruiser *Effingham* is substantially as shown in June, 1924, but that an anti-aircraft gun has been put on the center line between the two after 7.5" guns.

Singapore naval base

The enlargement of the naval base at Singapore was one of the measures decided upon at the imperial conference of 1923, but the Socialist Government, supported by the Liberals, abandoned the project. The Conservatives have given satisfaction to the Dominions, and particularly Australasia, by proceeding at once with the enterprise.

Flouting the Washington Conference agreement

A London journal publishes the following from its "naval correspondent":

The failure of the Washington Conference to end competition in naval armaments is demonstrated by a series of remarkable statements in the new issue of Brassey's "Naval Annual."

Sir George Thurston, the famous ship designer and a director of Vickers, has a chapter on light cruisers, which shows how the naval architects of the world can get around the Washington limitations.

He presents designs for ships of this class which conform to the agreed limit of 10,000 tons displacement, but which are vastly more formidable than any light cruisers hitherto known. His principal design is for a vessel 500 feet in length, with a speed of 35 knots, carrying nine 8-inch guns, four 4.7 antiaircraft guns, and 12 torpedo tubes.

The Washington Conference limited the size of guns to be carried by cruisers to 8-inch, but it said nothing about the number to be mounted in each ship. The designers accordingly proceed to put in every possible gun by installing triple mountings in each turret instead of twin mountings.

The difference this makes may be seen by the following comparison between a war-time light cruiser and the new design:

| | Old design | New design |
|--------------------|-----------------|--------------|
| Displacement..... | 4,750 tons..... | 10,000 tons. |
| Speed..... | 29 knots..... | 35 knots. |
| Guns..... | 6 6-inch..... | 9 8-inch. |
| | 2 3-inch..... | 4 7-inch. |
| Torpedo tubes..... | 12..... | 12. |

The increase in weight of broadside in the new type is overwhelming. The war-time light cruiser could fire a 600-pound broadside. The new design could fire 2,246 pounds.

"This vessel," writes Sir George Thurston, "subject to being fitted with an up-to-date fire control system, is, in my opinion, one of the most powerful units that could be designed for the purpose in question."

All the nations of the world that are building ships are approaching the new design.

The United States proposes to lay down eight cruisers of 10,000 tons each carrying eight 8-inch guns, with a speed of 33 knots.

Japan's program includes two laid down and four more projected of 10,000 tons, eight 8-inch guns, and 32 or 33 knots speed.

Italy has two vessels in hand of 10,000 tons, carrying eight 8-inch guns, and with a speed of 34 knots.

France has a project before Parliament for six 10,000-ton cruisers, carrying eight 8-inch guns, with a speed of 33 knots.

Details of the British *Kent* class light cruisers are not given in the Annual, but it is known that they also will be 10,000-ton ships. Triple gun turrets for the two new battleships that are building for Britain are mentioned as a possibility. This will mean that the Washington restriction has again been circumvented by the designers, owing to the fact that while the size of the gun is limited to a 16-inch piece, there is no limitation on the number that can be mounted in any one ship.

The *Nelson* and *Rodney*, if they are fitted with triple gun mountings, will each carry nine 16-inch guns, with a consequent broadside of 22,149 pounds as against the 13,600 pounds broadside of the *Revenge* class, our latest battleship in service.

Capt. Dudley W. Knox, of the United States Navy, also writes on light cruisers in the Annual. He states that—

"Attention should again be called to the great alteration in aggregate naval strength among the powers which these programs (of light cruiser construction) are fast bringing about. They will soon make a mockery of the Washington Conference not only by effectually destroying the agreed-upon ratio of naval strength, but also by restoring highly expensive competitive building."

Establishment of airship base in Egypt

Press announcements have been made to the effect that Ismailia on the Suez Canal has been chosen as an intermediate airship base for the England-India route, and that a mooring mast will shortly be erected at that place. The selection of Ismailia in preference to Cairo is believed to have been made because Ismailia is within the British military zone for the protection of the canal.

Further details regarding all-metal aircraft

[Source reliable]

Some further information has now been gained in regard to the aircraft embodying Doctor Rohrbach's methods of construction, which are being built to the order of the air ministry.

One all-metal seaplane, similar to the type previously described, is being built at Copenhagen for the air ministry. This seaplane will be equipped with Rolls-Royce Condor engines instead of Rolls-Royce Eagle 8's.

William Beardmore is building to the order of the air ministry a large all-metal airplane described previously. It is understood that Doctor Rohrbach is doing the design work for this airplane. It will have three Rolls-Royce Condor engines; all tractors mounted in eggs on the top of the wing. The span of the airplane, which is of monoplane type, is understood to be 120 feet. The duty for which this airplane is being built has not been disclosed, but it is obviously either for heavy bombing or a passenger carrier, probably the latter.

William Beardmore is also constructing an all-metal semicantilever type, two-place airplane, biplane type, equipped with one Napier "Lion" engine. The design work for this airplane is being done by Mr. Shackleton, who was the designer for the most successful light airplane of the recent Lympne competition. So far as is known, no aircraft other than those of the light airplane type have been constructed to Mr. Shackleton's design. He is regarded, however, as being a designer of great promise, and it is expected that this airplane will embody some new and interesting features.

All the airplanes mentioned above are being built of duralumin in spite of an avowed policy of the air ministry to use every endeavor to develop steel construction. Very little aluminum is produced in the United Kingdom, and it is the policy of the air ministry to endeavor to develop the use of only those materials which can be obtained within the United Kingdom.

ITALY

DESCRIPTION OF NEW SEAPLANE

December, 1924

[From Italian aeronautical publication]

The following is the description of the latest development in Italian seaplane construction, the *Savoia Marchetti 55*:

The Savoia seaplanes of the Northern Italy Seaplane Co.

The active seaplane constructing firm of northern Italy (Società Idrovolanti Alta Italia), has accomplished a wonderful program this year: five experimental planes have been successfully tried out, although based on new and daring principles.

Engineer Marchetti has accomplished most unusual results and the new creations of his firm are certainly destined to the greatest success. We are informed that this company is making important contracts with foreign nations for the newly constructed machines.

The seaplane monoplane Savoia Marchetti 55 Fiat 600 horsepower

This machine is really the greatest novelty in Italian aviation this year and it is destined to the greatest success both in the military and civil field. This plane has been completed together with five other experimental planes of different types.

The new machine was designed and built by Engineer Alessandro Marchetti, whose ability in aeronautical engineering is well known. It was tried out on the Lago Maggiore, and the numerous aviators who have flown in it state that it has a surprising flying and maneuvering capacity. This new machine is therefore a real revelation and will be of great advantage to Italian aviation.

It might be compared with the Curtiss torpedo seaplane that was built in the United States two years ago, although the floats and engine mountings are entirely different. Also the Curtiss torpedo plane has practically no ceiling. It only reached the height of a few hundred meters, while the Italian type has already surpassed the predicted ceiling. Although heavier than was calculated, still it flew magnificently with its complete load at a very high speed.

It is foreseen that planes of this type with suitable motors will fly at a speed of several hundred kilometers per hour. This machine has all the elements that will permit of its development into a perfect aircraft.

The wings.—The wing span is 24 meters. It is a thick wooden wing divided into three sections and in and on the center section is the pilot's cockpit and the beds of the motors. The outer wing section on each side of the center section measure 9 meters; each of them can be easily dismantled. The thickness of the wing in the center is nearly 90 centimeters; it is covered with ply wood and linen. At the end the wings are fitted with ply-wood ailerons.

The chord of the wings is 3 meters. The height of the wings above the bottom of the boat hulls is so great that the seaplane can float on a rough sea without damage or many shocks. The thickness of the wings, which, as already stated, is 90 centimeters in the center, diminishes to 20 at the end. The ailerons are 6 meters long and 80 centimeters wide.

The tail.—The tail is held by two strong metal longitudinals that start from the two boats. The elevator is 9 meters wide. There are three vertical rudders preceded by a triangular vertical fin.

The floats.—The two floating boats placed in the center of the plane at 4 meters distance from each other enable this machine to float on the roughest sea. They each have a step. In these boats there is room for men to work the machine guns and radio and for arms and bombs. Under the central part of the wing it is possible to place a torpedo or an 800-kilo bomb, or else several smaller bombs. This plane can also be armed in front and behind, so that in all its parts it can offend and defend itself equally well.

The motors.—There are two motors placed in tandem on M-shaped motor beds. They are Fiat motors (Fiat A 12 bis 200 H. P.), and will soon be substituted by Lorraine motors 400 horsepower. The axis of traction does not change when one of the motors stops. The motors are protected by cowling and have a honeycombed front radiator.

Characteristics

[Radius of action=5 hours]

| | | |
|--------------------------------------|--------------------|---------|
| Wing span | -----meters | 27 |
| Total length | -----do | 16 |
| Maximum chord of wing | -----do | 5 |
| Minimum chord of wing | -----do | 3 |
| Span of horizontal stabilizer | -----do | 8 |
| Wing surface | -----square meters | 93 |
| Weight, empty | -----kilos | 2,770 |
| Weight of torpedo | -----do | 800 |
| Weight of pilots and passengers | -----do | 800 |
| Fuel for 5 hours | -----do | 480 |
| Total weight | -----do | 4,450 |
| Load per square meter | -----do | 46.70 |
| Load per horsepower | -----do | 7.35 |
| Factor of safety | ----- | 7 |
| Maximum speed | -----kilometers | 160-180 |
| Minimum speed | -----do | 80-90 |
| Climb to 1,000 meters in 6 minutes. | | |
| Climb to 3,000 meters in 40 minutes. | | |

Trials carried out.—Not many believed in the success of this plane when first it glided into the waters of the Lago Maggiore. Its chief supporters were Engineers Luigi Capè and Alessandro Marchetti. Sandro Passaleva, the well-known world record man for speed, was the first to try it out and taxied and brought the machine on the stop with extreme ease. The ensuing trials were carried out with varying loads, and after a few days the plane carried 1,500 kilos and climbed to over 3,000 meters in forty-five minutes.

During the trials the plane was piloted by many different airmen and proved to be easy to handle and satisfactory in all respects. It is easy to take off, to maneuver, and to land. It has reached a speed of 193 kilometers. The pilot's installation is comfortable and well protected.

This machine opens new horizons for our civil and military aviation.

Various uses of the Savoia Marchetti 55 seaplane

This plane can be employed for several purposes. For commercial purposes it can easily carry 12 passengers, besides the crew, and also room for ham-

mocks and for storing baggage, mail, etc. As already said this machine can easily weather the roughest sea and can be fitted with watertight compartments. The tail empennage is so high that it can not be damaged by waves.

In the military field this plane is both formidable and practical because it can be put to many uses. It is the kind of plane that the minister of marine considered so necessary in the recent naval maneuvers, and that the admirals considered unattainable.

It is only necessary that the authorities decide whether it must have 600 or 6,000-horsepower motors, whether it must be wooden or metal, whether a land plane, a seaplane, or both. In any case it is a triumph of Italian aeronautical construction and deserves the greatest encouragement.

ITALY

MISCELLANEOUS NOTES

January, 1925

[From Italian Press]

New construction

On July 17 at the Cantiere di Sestri Ponente della Ansaldo S. A., was launched the light cruiser *Tigre*, the second of a series of three that the Cantiere di Sestri Ponente della Ansaldo S. A. has under construction. The first, the *Leone*, has already been undergoing trials for some time, while the third, the *Pantera*, will be launched very shortly. Their principal characteristics are: Length 109.6 meters, breadth 10.36 meters, mean draft 3.52 meters, displacement 2,195 tons; speed 34 knots, with 42,000 horsepower, twin screws, geared turbines. The armament consists of seven 120/45's in four twin mounts, two 76's, antiaircraft guns, two machine guns, and six torpedo tubes of 450 millimeters, in two triple tubes.

To the ships recently ordered the following names have been assigned:

(a) Torpedo boat destroyers of 1,355 tons displacement and 36 knots speed: *Borca*, *Espero*, *Ostro*, and *Zeffiro*, that will be built in the Cantiere di Sestri Ponente della Ansaldo S. A.; *Aquilone* and *Turbine* that will be constructed at the Cantiere di Sestri Ponente della Società N. Odero, formerly Aless & Co.; *Euro* and *Nembo* that will be constructed in the Cantiere di Riva Trigoso della Società Esercizio Bacini.

Submarines of medium cruising radius: *Giovanni Bausan*, *Marcantonio Colonna* and *Vettor Pisani* of 805 tons in surface trim, that will be constructed in the Cantiere Navale Triestino of Monfalcone; *Pier Capponi*, *Giovanni Proccida* and *Masaniello* of 780 tons in surface trim that will be constructed by the Cantiere Navale Franco Tosi of Taranto.

Mine sweepers and mine layers of 700 tons displacement: *Ansio*, *Legnano*, and *Lepanto*, that will be constructed by the Cantieri Navali Riuniti of Ancona; *Dardanelli*, *Milazzo*, and *Ostia* that will be constructed in the Cantiere Navale Triestino of Monfalcone.

In consequence of assigning these names to the ships under construction, the names of certain ships already in service have been modified; thus the torpedo boat *Euro* has been assigned the name of *Strale* and the tugs *Nembo* and *Ostia* will be called respectively *Camogli* and *Promontore*.

On July 30 at the Cantiere Navale Scoglio Olivi was launched the repair ship *Quarnaro*. This is the first ship destined for the navy to be constructed in a shipyard belonging to the redeemed territories, although the Cantiere Navale Scoglio Olivi did not exist under the old Austrian-Hungarian régime because it was an integral part of the national organization of the Pola Navy Yard.

The *Quarnaro* was designed as a tanker, but during its construction it suffered a change of design and will serve to fill a newly felt want, as the old repair ship *Vulcano*, of much precious service in peace and in war, has had to be dropped because of age from the naval list.

The principal characteristics of the *Quarnaro* are: Length 110 meters, breadth 14.8 meters, medium draft 6.7 meters, displacement 8,270 tons, presumed speed 11.5 knots, 2,300-horsepower, reciprocating triple expansion engine. It will be armed with three 102 millimeter antiaircraft guns.

The ministry of marine has furnished the following data relative to the two new light cruisers *Trento* and *Trieste*:

| | |
|---|------------------------------|
| Length..... | 195.30 meters = 640.58 feet. |
| Width..... | 20.60 meters = 67.57 feet. |
| Displacement standard..... | 10,160 tons. |
| Parsons turbines..... | 135,000 horsepower. |
| Speed..... | 34.5-35 knots. |
| 8 guns 203.50 = 7.9 inches. | |
| 12 guns 102.50 = 3.34 inches. | |
| Armor belt (measurement not yet decided). | |
| 4 sets of torpedo tubes (two tubes each). | |
| 4 searchlights. | |
| 2 tripod masts. | |

New corps of officers for the direction of machinery

There is instituted by the decree a corps of officers for the direction of machinery, thus substituting the corps of naval engineers. The officers of this corps do not belong to the general staff of the navy.

The corps of the royal navy are therefore—

(A) For officers: (a) The corps of general staff = the line (in which specialists in naval arms are comprised); (b) The corps of officers for the direction of machinery; (c) The naval construction corps; (d) The medical corps divided into three categories—Medical officers, chemists, band chaplains; (g) The corps of officers of the C. R. E. (officers who rise from the ranks), divided into the following categories: ruddermen, helmsmen, gunners, torpedomen, radiomen, helpers, mechanics, assistants for the naval construction corps, carpenters, semaphore men, nurses, quartermasters, and the band.

(B) For petty officers, enlisted men, and conscripts: (a) The C. R. E., divided into the following categories: Ruddermen, helmsmen, gunners, torpedomen, radiomen, helpers, mechanics, firemen, assistants for the naval construction corps, carpenters, semaphore men, nurses, quartermasters, firemen, buglers, and the band.

The grades in the corps of officers for the direction of machinery correspond to the grades in the other corps of the navy.

All regulations in connection with the corps of naval engineers apply now to the corps of officers for the direction of machinery.

Italian Navy report on the trials of the 450 by 5,530 millimeter and the 533 by 7,600 millimeter torpedoes—Whitehead Works, Fiume

450 by 5,530 torpedo.—Excerpts from the report presented February 21, 1924, by Commander L. Caretti and Commander G. Gorleri.

The following are the characteristics of the experimental 450 torpedo—model, 1924—presented by the Whitehead Works.

Diameter—450 millimeters.

Length—5,530 millimeters.

Total weight of the torpedo ready for war shot—890 kilograms.

Depth setting—2 to 14 meters.

Speeds guaranteed in the contract: At a range of 6,000 meters medium speed of 30 ± 0.5 knots. At a range of 2,000 meters medium speed of 45 ± 0.5 knots.

Guaranteed deflection in the horizontal trajectory—1/100 of the range.

The torpedo tried out had already been launched 17 times since its construction.

The following are the results of the trials carried out on February 18, 1924.

First trial

Distance gear set for a range of 6,000 meters—normal run—smooth sea. Speed at 2,000 meters=30.4 knots—deflection plus 7 meters. Speed at 6,000 meters=30.8 knots—deflection plus 48 meters.

Second trial

Distance gear set for a range of 2,000 meters—smooth sea—without resetting the gyroscope—normal run: Speed, 44.12 knots; deflection, 9 meters.

On the 19th, owing to the weather conditions no trials were carried out. The drawings and sketches for the construction of the torpedo were examined; the position of the targets was verified; the torpedo was dismounted and each part verified. The various parts of the torpedo were considered of simple drawing and construction and they were rationally placed in the center of the torpedo in order to obtain, as much as possible, a horizontal arrangement and thus avoid the disadvantages of the vertical position after the torpedo is launched.

Each part of the torpedo, which, as stated above, had already been launched 19 times was in good condition and ready to be used again.

The torpedo can be easily and rapidly dismounted and when the compartments are detached the inside parts appear all grouped together but quite easy to examine.

The director of the Whitehead Works states that a velocity of 45 miles was not obtained owing to an undercurrent the speed of which could not be controlled as the necessary device was not available.

To sum up

Considering the results of the trials and the inspection of each part of the torpedo it would appear that the 450 millimeter experimental torpedo corresponds to the characteristics stated by the Whitehead Works and it is an improvement with respect to the torpedoes now in use as regards speed, easy dismounting, and simplicity of design.

Signed:

COMMANDER L. CARETTI.
COMMANDER G. GORLERI.

After these official trials the torpedo was again launched at the launching station of the works with the distance gear set for a range of 2,000 meters and the following results were registered:

Trial carried out on March 6, 1924.—Speed, 45.04 knots, deflection, +9.

Trial carried out on March 26, 1924.—Speed, 45.20 knots, deflection, —3.

533 by 7,600 torpedo.—Excerpt from report No. 4942, dated October 20, 1924, of the technical ordnance and ammunition office of Venice to the ministry of marine.

A commission sent by the above Government office stayed at Fiume from October 11 to October 16, 1924.

On the 11th, 12th, and 13th a very strong wind prevented long-range launchings and the two experimental torpedoes Nos. 15001 and 15002, were inspected and the position of the targets along the line—*Pontile Berscezi*—controlled.

Characteristics of the 533 by 7,600 torpedo—model 1924.

Diameter, 533.4 millimeters.

Length, 7,600 millimeters.

Weight of explosive charge, 250 kilograms.

Total weight of torpedo ready for war shot, 1,650 kilograms.

Depth setting, 2 to 14 meters.

Description of the torpedo.—As regards distribution and design of the parts it is very similar to the 450 by 5,000 torpedo for submarine chasers. The difference consists in the relative proportions of the various parts: the only substantial difference is that in the present torpedo a gyroscope with continual impulse is used.

As in torpedo No. 15003 (450 by 5,000) the grouping of the parts is very compact and simple, and the head can be unscrewed in about ten minutes, though it is inserted with a crown of screws.

Torpedo No. 15002 has undergone 47 trials and was launched twice at a range of 15,000 meters, and No. 15001 has undergone 27 trials, being launched once at a range of 15,000. The engines are in good condition and no part of them appears to have been damaged. It would appear that resetting and lubricating is necessary every 10 or 12 runs.

The gyro worked excellently during three 15,000 meters runs and several 10,000 meter runs, the torpedo being launched from an underwater tube.

All data controlled and gathered confirm the statement of the director of the works that it is possible to obtain a speed of 45.5 knots plus or —5 on a 3,000 meter run.

First trial, October 15, 1924, 9 a. m. Torpedo 15001 (2nd run of the torpedo). Distance gear set for a range of 10,000 meters. Speed at 6,000 meters=30.2 knots, deflection plus 32 meters. Speed at 10,000 meters=30.5 knots, deflection plus 75 meters. The director thinks that by intensifying the pressure in the air flask it would be possible for this torpedo to reach the speed of 31.5 knots as already obtained with the 15002.

October 15, 11 a. m.—The same torpedo is again launched (twenty-fourth run) with the distance gear set for a range of 15,000 meters, with the following results: Speed at 6,000 meters=25.3 knots, deflection plus 10 meters: speed at 10,000 meters=25.8 knots, deflection plus 55 meters: speed at 15,000 meters=25.5 knots, deflection plus 70 meters.

October 15, 3 p. m.—The same torpedo is again launched (twenty-fifth run) with the distance gear set for a range of 15,000 meters with the following results: Speed at 3,000 meters 36.5 knots=deflection plus 18 meters: speed at 6,000 meters 36.15 knots=deflection plus 24 meters.

General remarks on the trials.—The gyro, all the engines and regulating devices work satisfactorily.

The following may be considered the average speed of the torpedo :

| | | |
|--|-------|------|
| At a range of 3,000 meters = 45.5 knots | ----- | ±0.5 |
| At a range of 6,000 meters = 36 knots | ----- | ± .5 |
| At a range of 10,000 meters = 31.5 knots | ----- | ± .5 |
| At a range of 15,000 meters = 25.5 knots | ----- | ± .5 |

Inspection of the launching station.—The position of the targets was accurately controlled and between the actual and the theoretical distance there is never more than 6 meters difference for the 6,000 meter target and 12 meters for the 10,000 meter target.

The targets are fixed at 40 meters distance on the right or left of the theoretical position on account of the accelerated movement of the torpedo. The differences when inferior to one-tenth of a knot are considered negligible.

To sum up

It is considered that speeds reached during the official trials may be considered the average speeds of the torpedo.

Signed :

CARETTI,

Head of division.

MINISINI.

Before the above trials the following results were obtained with torpedo No. 15002.

July 15, 1924.—Range at 3,000 meters, speed 45.55 knots, deflection—16 meters.

July 21, 1924.—In the presence of Admiral Gambardella, the General Director of the Bureau of Ordnance, and Commander Minisini: Range at 3,000 meters, speed 45.42 knots, deflection plus 26.

Sale of arms to German firm

[Source reliable]

1. The firm of Bruno Spero, of Hamburg, is reported to have recently made three separate purchases of small arms and ammunition therefor from the Italian Government. The first order amounted to 25,700 pounds sterling, the second to 27,500 pounds sterling, and the third to 45,000 pounds sterling, making a total of 98,200 pounds sterling purchased.

2. These purchases have been financed by Dubarry of Amsterdam (bankers) and two local banks.

3. Everything appears to be legal and in order at this end, and the shipments are made under Government release to Bruno Spero's ships at Leghorn. What their ultimate destination is I have been unable to ascertain, but it is thought that their immediate destination is Hamburg.

JAPAN

VESSELS ATTACHED TO NAVAL STATIONS

December, 1924

The following information is furnished by the Japanese Navy Department:

Yokosuka Naval Station.—Ships in commission: *Nagato*, *Aso*, *Hosho*, *Fuji*, *Kamoi*, *Kwanto*, *Takasaki*, *Seito*, *Naruto*. Third destroyer division: *Shiokaze*, *Shimakaze*, *Nadakaze*, *Yukaze*. Second mine sweeper division: *Ariake*, *Fubuki*, *Kamikaze*, *Hatsushimo*, *Kisaragi*, *Hibiki*. Mine sweepers not attached to any division: *Urakaze*, *Shiratsuyu*, *Mikazuki*. Third submarine division: *RO-11*, *RO-12*, *RO-13*.

Ships in reserve: *Haruna*, *Iwate*, *Nisshin*, *Chikuma*, *Kitagami*, *Chihaya*, *Susaki*, *Manshu*, *Musashi*, *Matsuye*, *Asahi*, *Shiriyu*. Second destroyer division: *Minakaze*, *Sawakaze*, *Okikaze*, *Yakaze*. Ninth destroyer division: *Kurewa*, *Maki*, *Keyaki*, *Tsubaki*. First submarine division: *HA-1*, *HA-2*. Second submarine division: *HA-9*, *HA-10*.

Kure Naval Station.—Ships in commission: *Yahagi*, *Katsuriki*, *Karasaki*, *Yodo*, *Tsurugizaki*, *Iro*, *Nojima*, *Ondo*, *Mamiya*. Sixth mine sweeper division: *Uranami*, *Isonami*, *Minazuki*, *Ayanami*, *Nagatsuki*, *Kikuzuki*. Eleventh submarine division: *RO-51*, *RO-53*. Fifteenth submarine division: *RO-14*, *RO-15*, *RO-16*. Sixteenth submarine division: *RO-17*, *RO-18*, *RO-19*.

Ships in reserve: *Ise*, *Hiroto*, *Kuma*, *Kiso*, *Tama*, *Chitose*, *Akashi*, *Settsu*, *Koshu*, *Notoro*, *Noma*, *Muroto*, *Yamato*. Fourteenth destroyer division: *Kawakaze*, *Tanikaze*, *Kiku*, *Aoi*. Twelfth submarine division: *HA-3*, *HA-4*, *HA-5*. Thirteenth submarine division: *HA-6*, *HA-7*, *HA-8*.

Sasebo Naval Station.—Ships in commission: *Tatsuta*, *Sata*. Twenty-seventh destroyer division: *Hishi*, *Sumire*, *Warabi*, *Ashi*. Eleventh mine sweeper division: *Ushio*, *Nenohi*, *Harukaze*, *Asakaze*, *Wakaba*, *Hatsuyuki*. Twenty-third submarine division: *RO-3*, *RO-4*, *RO-5*.

Ships in reserve: *Tsushima*, *Uji*, *Mogami*, *Shikishima*, *Hayatomo*, *Shiretoko*, *Tsurumi*, *Erimo*. Twenty-fourth destroyer division: *Momo*, *Yanagi*, *Kashi*, *Hinoki*. Twenty-fifth destroyer division: *Nashi*, *Take*, *Momi*, *Kaya*. Twenty-sixth destroyer division: *Kaki*, *Nire*, *Toga*, *Kuri*. Twenty-eighth destroyer division: *Tade*, *Hagu*, *Yomogi*. Twenty-first submarine division: *RO-1*, *RO-2*.

Maidzum Naval Station.—Ships in commission: *Kasuga*. Seventeenth destroyer division: *Umikaze*, *Yamakaze*, *Nara*, *Enoki*.

Ship in reserve: *Azuma*.

Bako Naval Station.—Ships in commission: *Yubari*, *Komabashi*. Twenty-third destroyer division: *Matsu*, *Sugi*, *Kashiwa*, *Sakaki*. Twenty-fifth submarine division: *RO-29*, *RO-30*, *RO-32*.

Chinkai Minor Naval Station.—Ships in commission: Twenty-second destroyer division: *Katsura*, *Kayede*, *Ume*, *Kusunoki*. Twenty-second submarine division: *RO-23*, *RO-24*.

Ominato Minor Naval Station.—Ships in commission: Eighteenth destroyer division: *Amatsukaze*, *Tokitsukaze*, *Isokaze*, *Hamakaze*. Fifth submarine division: *RO-20*, *RO-21*, *RO-22*.

Port Arthur Defense Corps.—Ships in commission: Twenty-first destroyer division: *Sakura*, *Tachibana*, *Kaba*, *Kiri*.

JAPAN

LIGHT CRUISERS

December, 1924

While at Kure Navy Yard recently the light cruisers *Tama*, *Kiso*, and *Kinu* were seen. At Kobe the *Jintsu* was seen.

Of these cruisers the *Kiso*, *Kinu*, and *Jintsu* were fitted with airplane hangar under bridge and launching platform. In the pamphlet describing the recent Japanese maneuvers can be seen pictures of the *Isuzu*, *Sendai*, *Yura*, *Kuma*, *Kinu*, and *Kiso*, all equipped with similar airplane stowage and launching apparatus. We were told by a lieutenant constructor stationed at the Kawasaki plant, Kobe, that the *Kako* and *Kinukasa*, the 7,100-ton cruisers building at that plant, were to be fitted to carry one airplane with housing and launching gear similar to that on the *Kiso*, but of an improved type. It seems probable that all cruisers already built subsequent to the *OI* are fitted with airplane housing and launching equipment, and that all cruisers building are to be similarly equipped.

There are no cranes forward on the *Kinu*, *Kiso*, or *Jintsu* capable of picking up a plane from the water. We were told during the visit at Kobe that land machines with folding wings are used on the cruisers, and that when a plane was to be launched a portable platform was erected which completed the taking-off platform to the bow.

During the inspection at Kure Naval Station, while passing through a gun shop, a number of guns were seen which appeared to be and which we were told were 14-cm. guns. Informant also said that the 14-cm. gun was used on light cruisers and the 12-cm. gun was used on destroyers. Janney gear employing a motor-driven double oil pump for gun training and simple motor for elevating, stated to be used on cruisers.

Anchored in Kobe Harbor was the *Jintsu*, which informant stated was delayed in completion, due to necessity of replacing defective main steam turbines manufactured by the Kawasaki plant. Two of the *Jintsu*'s four funnels were missing, having apparently been removed to allow for the installation on board of the main turbine engines. The main-engines of the *Jintsu* were said to be Brown-Curtiss type, delivering 15,000 horsepower through reduction gears. The engines for the *Koko* and *Kinshusa* were also said to be Brown-Curtiss turbines, designed to give these cruisers a speed of 36 knots, and these cruisers are to burn oil.

In one of the shops at the Kawasaki plant were seen several small tube water-tube boilers of the express type, which was said to be for the *Koko*. On the ways at the Kawasaki plant was seen the *Koko*, the hull plates of which are about 70 per cent complete. The *Koko*, we were informed, would be completed in about one year.

On an adjacent building ways a vessel's keel had been laid. This was said to be the keel of the *Kinshusa*.

JAPAN

SUBMARINES

December, 1924

A recent visit to Kure Naval Station and the Mitsubishi and Kawasaki Dockyards, Kobe, has cleared up the external characteristics at least, of several classes of submarines.

(1) *500 ton class*.—This class contains two separate and distinct types of boats. The *RO-51* to *RO-56*, inclusive, comprise one type and the *RO-57* to *RO-59* comprise the other type. The first type (*RO-51* to *RO-56*) are copies of the British L type. A picture of the *RO-53* is attached. This type has four bow tubes, two inclined-bow tubes and no stern tubes. It is armed with one anti-aircraft 3-inch 20 caliber gun carried on deck forward of the bridge. It is equipped with the Y tube on deck well forward and with loop antennae. Two masts forward and aft carry the flat top antennae and a telescopic mast rising from the after part of bridge is used for flag signals. As may be seen from report No. 323 of December 28, 1923, this type principally differs from the *RO-57* to *RO-59* type, which is called by the Japanese their improved L type, in the size and shape of the bridge, location of anti-aircraft guns and shape of deck superstructure. In the *RO-57* to *RO-59* type the inclined bow tubes have been removed. The *RO-53* was seen at anchor at Kure and checks up exactly with the attached picture of the *RO-54*.

(B) 998 ton class.—(*RO-60 to RO-64, RO-68.*) Of this class the *RO-63* and *RO-64* have been launched and were seen in the fitting out basin of the Mitsubishi Dockyards, Kobe. The *RO-68* was seen on the building ways at the same plant. The *RO-63* is about ready to go into commission or on trials. When seen she was in the process of being painted war color green, and appeared complete except for gun installation. This ship was examined very closely with object of comparing it with the picture of *RO-61* previously forwarded. The *RO-63* differs from the picture of *RO-61* in that she has a third periscope and a telescopic type radio mast aft and had no gun. The gun emplacement is exactly the same and it is supposed that the gun is to be installed on the *RO-63* at a navy yard. The mast just abaft the center of the bridge is a telescopic signal flag mast supporting a signal yard with six halyards. The flat top antennae is carried by the two telescopic masts one forward and one aft. This is a double hull submarine with submerged bow planes; is equipped with (a) three housing periscopes capable of about 12 feet house; (b) Y tube on deck forward; (c) 3-inch 20 caliber antiaircraft gun on deck just forward of bridge; (d) patent anchor housed in superstructure starboard side forward; (e) large comfortable looking semichariot bridge; (f) clearing wires from bow to stern. It was particularly noticed that the *RO-63* is not equipped with a loop antennae.

The *RO-68* was seen on the building ways from a distance of about 100 yards. The stern was not sufficiently completed to determine whether or not this type submarine will be equipped with stern tubes. It is certain that there were no stern tubes installed at the time of inspection but from the shape of the stern it is believed that two stern tubes arranged horizontally will be installed. The only intimation of the number of bow tubes possessed by this class of submarine was obtained in conversation with a lieutenant engineer constructor stationed at the Kawasaki, Kobe, plant who stated that it was standard policy to install four bow tubes in all of the late Japanese submarines, but that some earlier submarines had six bow tubes and that this policy had been adopted due to difficulties of design and handling of torpedoes when using six bow tubes.

While at the Mitsubishi plant at Kobe a hand truck was seen being loaded by Japanese sailors with bags, suit cases, etc. very apparently consisting of personal effects. As the *RO-63* is the only warship nearly completed at this plant it is believed as indicating that this submarine is in the process of receiving its crew on board preparatory to trials or commissioning. The *RO-64* was tied up alongside the *RO-63*. The *RO-64* was red-leaded and appeared in an advanced state of completion. The superstructure bridge and

periscope fair water was complete. No periscopes were installed. This submarine appears to be a sister of the *RO-63* and no differences could be detected. On the building ways at the Mitsubishi, Kobe plant was seen three submarines building. Two of these submarines had hull plating about 70 per cent and 90 per cent completed, respectively, but no conning towers and the third showed the keel and only a few hull plates in place. The two submarines that were furthest advanced in construction are of the same size apparently. The numbers of these three submarines are not definitely known but are believed to be the *RO-68* and the *I-21* and *I-22*.

(C) *1,400-ton class*.—(*I-51* and *I-52*.) A picture of the *I-51* has previously been forwarded. This picture was obtained in the city of Kure the evening before the inspection was made of the Kure Navy Yard. The *I-51* was passed close to twice during the navy-yard visit. The picture checks up exactly with the submarine as seen except in one particular. When seen, the gun on the *I-51* was lying on wooden blocks on deck just forward of the bridge. The gun mount was absent as far as could be seen. It may be either that the gun mount had been removed for repairs or else that the gun mount is a disappearing model. I believe that the former supposition is correct. Later, during the visit, one of the escorting officers, who stated that his specialty was ordnance, was asked as to the caliber of guns on submarines and kind of mount. His reply was that before had gone to America (he returned from this visit a few months ago) they had been working on a disappearing mount for submarines but that he did not know whether or not this disappearing mount had been adopted.

The submarine antiaircraft gun was stated to be 3-inch, 20-caliber, which statement I think is correct, except in the case of the guns seen on the *RO-57*, *RO-58*, and *RO-59*, which are shorter and have a different mount (bridge mount).

From forward aft the following was noted:

- (a) Y tube.
- (b) Two metal stanchions for supporting clearing wires.
- (c) Forward folding radio mast.
- (d) 4.7-inch, 40-caliber gun (estimated).
- (e) Semichariot bridge with permanent metal cover and large, square-glass ports.
- (f) Three periscopes having about 12-foot house.
- (g) Telescopic mast for flag signals.
- (h) Radio folding mast for carrying flat-top antennæ.
- (i) Two stanchions for supporting clearing wires.
- (j) Upper part of vertical rudder.

It was noted that this submarine is not equipped with loop antennæ and has submerged bow planes.

(D) 750-ton class,—(*RO-26* to *RO-28*.) The only submarine seen of this type was the *RO-28*. This submarine is of Japanese Navy design and is a single-hull submarine. It has a small chariot bridge, United States S-boat stern, and has an antiaircraft gun on deck forward of the bridge.

(E) 655-ton class,—(*RO-29* to *RO-32*). The only submarine seen of this class was the *RO-31* (old No. 70). This submarine is at the Kawasaki plant, Kobe, and is to be broken up. This company is being forced by the navy department to build a new submarine to replace the *RO-31* which sank during trials while still in the hands of the contractors. I was informed that the new submarine was to be a duplicate of the *RO-31*. The *RO-31* was seen at a distance but the following was noted:

(a) Small chariot bridge.

(b) United States S-30 type stern.

(c) Stripped of periscopes, clearing wires, Y tube.

(d) Small sponson for gun just forward of bridge, probably for antiaircraft gun. No gun was installed.

(F) 1,970-ton class,—(*I-1* to *I-3*.) Prior to the official visit to the Kawasaki plant, Kobe, by means of a boat trip I was able to get a close view of the *I-2* and *I-3* on the building ways and also passed within 100 feet of the *I-1* at the fitting out docks. The hull plates of both the *I-2* and *I-3* were nearly complete. The conning towers were in place on both submarines. It was clearly seen that two stern tubes arranged horizontally are installed on one of these submarines. There were canvas tarpaulins hanging over the bow of the *I-1*, so that nothing could be seen of the bow torpedo tubes. The *I-1* was seen to be a very large double hull submarine. She is turtle-back shaped, the outer hull being complete the entire length of the deck. A deck is in process of being built on top of the outer hull, the frame work of which extended as far aft as the middle of the conning tower. The free flooding ports shown on the sketch show the extent of the nonwater-tight double hull. The conning tower rises about 10 feet above the outer hull. At the stern can be seen the upper part of the vertical rudder.

During the official visit to the Kawasaki plant one of the escorting officers, a lieutenant engineer constructor, was asked the names of the submarines building at this plant and how many bow and stern tubes they had. He stated the names as *I-1*, *I-2*, and *I-3*, and that they had four bow and two stern tubes. Inasmuch as the names and number of stern tubes was known to be correct it is considered probable that the number of bow tubes as stated is correct.

(G) 1,500-ton class.—During the visit to Kure Naval Station, the I-51 and I-55 were seen on the building ways, but at such a distance that nothing much could be determined. Both submarines seemed to be in about the same degree of completion. The hull plates were about 70 per cent complete and conning towers not yet installed. The stems and hulls in the vicinity of the bow not built up. After returning to Tokyo the French naval attaché, Commander Bair de La Coquerie, told me that during his visit to Kure in the latter part of November of this year that he had a close bow view of these two submarines and that they were of triple hull construction and that he distinctly saw three separate hulls. It may be mentioned here that this officer is quite familiar with methods of submarine construction and has served two years in submarines.

While visiting the submarine school at Kure, two ex-German submarines were seen. The larger of the two is being used as a pier connecting the present submarine base with the old cruiser which formerly was used as the submarine school. The smaller submarine was anchored about 200 yards off the submarine base. I was told that this submarine was being used as a station for training submarine listeners. That is, training submarine personnel in the use of sound sending and receiving apparatus.

Submarine engines.—I was not permitted to see any submarine engines either at Kure or at the Mitsubishi plant, Kobe. While passing through the machine shops at Kure I saw several two-cycle type submarine engine cylinders of about 24-inch internal diameter. While passing through machine shops at the Mitsubishi plant, Kobe, I saw several four-cycle type cylinder heads made of cast iron or cast steel. While at the Kawasaki plant, Kobe, we were informed that all submarine engines for submarines built by this plant were constructed at the Kobe Steel Works and that the Mitsubishi plant, Kobe, manufactured submarine engines complete for the submarines built at that plant.

Submarine school.—The submarine school at Kure is located just beyond the north end of the long coal pile. It consists of four large two-story frame buildings which we were told had been transferred from the Maidzuru Naval Station. These four buildings are in the form of a square around a large open plot. One of these buildings is used for officers' quarters and officers' school, one for enlisted men's barracks, one for administration, and the fourth for the enlisted men's school. The buildings are still in process of completion as regards interior equipment. At the time of the visit we were informed that there were six line officers and seven engineer officers under instruction and that the course for officers is of four months'

duration. There are about 200 enlisted men under instruction, 100 executive branch and 100 engineer branch. The course for enlisted men is of six months' duration. At completion of course both officers and men are ordered to submarine duty. A great deal of practical instruction on board submarines is given both officers and men while they are under instruction at the school.

The school has no attack teacher and we were told that the attack was taught on board the submarine. On the floor of one room was seen laid out about a 20-foot square painted white. This is used as a tactical game board. The only equipment in the room for use with the game board was a number of ship models on the shelves of a glass-inclosed enpboard. On the sea wall adjacent to the submarine school buildings were seen two apparatus used for training in depth control. These were identical and consist of a platform on which is mounted two wheels which represent the vertical and horizontal rudder wheels of a submarine. Fore and aft and athwartship inclinometers are provided but no depth gauges, periscopes, nor compass. The platform is capable of being tilted and rotated. Men who are in training for rudder control are stationed on the platform, the platform is tilted and rotated and by proper turning of the wheels the platform is brought back to the horizontal and proper fore-and-aft position. I was permitted to view this apparatus for only a very short time and am unable to describe the mechanical arrangements which permit the movement of the platform.

JAPAN

AIRPLANE CARRIER AKAGI

December, 1924

The *Akagi* was seen building at Kure Naval Station from a position about 50 yards abreast of the bow.

The *Akagi* is building in dry dock. The main hull is complete. Wood backing for armor was seen but armor plates not yet in position. The original main deck appears to be the flying deck. No structure of any kind at present appears above the flying deck.

The main deck drops down to a lower deck at the bow. On this bow deck structural work is being done, apparently to continue the flying deck forward to the stem.

JAPAN

MISCELLANEOUS NOTES ON KURE NAVAL STATION

December, 1924

Outside of the gun shop at Kure was seen eleven 40 cm. guns said to have been intended for the *Akagi*.

All Japanese made naval guns above 12 cm. said to be wire wound. Breech mechanism said to be Vickers type.

All turret machinery on capital ships said to be hydraulic.

At Kure Naval Station while returning by boat from the submarine school passed the *Higoi*. Work is being done on all the turrets of this ship. Informant said turret range finders were being installed. The turrets were covered with canvas so that gun ports could not be seen. The *Higoi* was passed close aboard and it was seen that the turret gun ports extended into the roof of the turret.

While passing through the Kure yard two metal sea sleds about 15 feet long and 4 feet draft were seen in process of construction. These were said to be intended for use as towed high speed targets. It is probable that they are to be targets for torpedo fire.

Ahead of the dry dock at Kure in which the *Akagi* is building a hill is being cut away to provide ground space for erection of a building for storage of ship plates, frames, angle irons, and similar material.

Close to this same dock a large two-story building is nearly completed which was said to be intended for use of draftsmen.

At present there are about 20,000 workmen employed at the Kure Naval Station.

The hours for yard workmen are 7 a. m. to noon, 12.30 p. m. to 4.45 p. m.

Work is knocked off for 10 minutes in the morning and 10 minutes in the afternoon for smoking.

The radio station at Kure yard adjoins the office building of the commander in chief of the naval station. This building is just inside the main entrance to the yard.

The radio antennæ is supported by two metal framework towers about 100 feet high.

JAPAN

A VISIT TO HIRO NAVY YARD

December, 1924

A visit was made to the airplane factory at Hiro Navy Yard, which is a plant capable of turning out airplanes complete.

At present only *F-5* flying boats equipped with Lorraine Dietrich 400-horsepower engines are being manufactured at Hiro. The following buildings are at Hiro, all brick or iron framework buildings with sheet metal, except the administration and office building which is of wood construction.

- (a) Administration and office building of two stories.
- (b) Machine shop combined with assembling and testing shop.
- (c) Forge shop.
- (d) Combined pattern and molders' shop.
- (e) Combined fuselage and wing construction shop.

In the machine shop were seen five completed Lorraine Dietrich motors which were said to be the first that had successfully passed the acceptance tests. A great deal of difficulty was being encountered in constructing "perfect" motors we were told, mainly casting troubles.

Informant stated that the maximum capacity of plant was three motors a month. It is believed that 25 motors a month is a more correct estimate. The maximum capacity of the fuselage and wing plant is estimated to be four boats a month. At the time of the visit there were five completed boat hulls and two under construction. These five completed boat hulls were in various stages of completion as regards wings, motors, etc. Two of these *F-5* boats appeared complete except for installation of motors. The wings are of wood construction throughout except for one metal frame around edge of wing. The boat hulls are of wood throughout. The ailerons are balanced. In the boat hull are seats for machine gunners forward and aft and two pilots' seats. The bomb-releasing gear and all equipment such as radio, navigator's equipment, etc., is made elsewhere.

It was stated that Avro type land training plans were manufactured at Hiro, but no more of this type plane were now being manufactured. As there is no landing field at Hiro, these land machines were not flown after completion at Hiro but were shipped to an air station. Adjoining Hiro is a large field about 1 mile square in the process of being reclaimed. This field was stated to be intended for use as a recreation field, but it appears very probable that it is to be used as a landing field for land airplanes. At the Hiro Air Factory 800 men were employed, but the factory is not being worked to full capacity, and it is estimated that 2,000 men could readily be employed if it were desired to speed up production.

Close to the air factory buildings are three large modern-looking factory buildings in which informant said main steam turbines and reduction gear for cruisers are being manufactured.

We were conducted through the air plant at Hiro by an engineer constructor, who said he had been stationed in America and was a graduate of Boston Technical College. He specializes in airplane construction and design.

JAPAN

NAVAL NOTES

Loss of the Japanese special-service ship Kwantō

The special-service ship *Kwantō* while proceeding from Kure to Maidzuru went aground during a blizzard off the coast of Nanjo district, in Fukuoka Prefecture, at about 7 a. m., December 12, 1924, and broke in two at about 11 p. m. the same date.

In addition to her regular complement of 150 officers and men, she had on board 57 passengers, of whom 111 were rescued, 79 bodies were recovered up to December 17, and 17 were unaccounted for. The commanding officer of the ship, Commander O. Torino was among those rescued.

The grounding of the *Kwantō* is attributed to the severe blizzard which was raging, it being impossible to determine the position of the ship several hours prior to the accident.

Koshu to relieve the Kwantō as repair ship

According to the Japanese press, due to the recent disaster to the *Kwantō*, it has been decided to assign the *Koshu* as a repair ship. The *Koshu* had been put on the reserve list on December 1, 1924, but will now be placed on the active list.

Destroyer No. 4 to undergo repairs at Sasebo

According to the Japanese press, the destroyer which went aground at Beppu last August will shortly be towed to the Sasebo Naval Station for necessary repairs, which are expected to be completed by the end of March, 1925.

Five third-class Japanese destroyers placed out of commission

According to the Japanese press, the eleventh destroyer division composed of destroyers *Oite*, *Hayate*, *Yayoi*, *Uzuki*, and *Hatsuharu* were placed out of commission at the Kure naval station on December 1, 1924. Each has a displacement of 380 tons.

Two navy planes crash in midair

According to the Japanese press, on the morning of December 19, 1924, while carrying out maneuvers at a height of about 500 feet at the Kasumigaura Naval Aviation Station, a scout plane piloted by Sublieutenant Yoshinaga crashed into the tail of an Avro plane piloted by Lieutenant Yamazaki and also carrying Naval Engineer Takakura at a point 2 miles west of the aviation grounds. Both planes crashed to the ground and when the three aviators were removed from the débris of the planes, which were completely demolished, they were still alive, but died on the way to the hospital.

Radio towers completed at Kasumigaura

According to the Japanese press the radio towers at Kasumigaura have been completed and ready for service from December 10, 1924. The towers are 150 feet in height. This radio station is to be used in connection with the aviation force stationed at Kasumigaura.

Scrapping of Japanese ships, progress of

According to the Japanese press, in reply to a query as to the condition of the various ships which are required to be scrapped under the terms of the Washington Conference, the reply made by the chief of the first section of the navy department was as follows:

We will have complied with the full terms of the treaty by February 16, 1925. The *Hizen* was sunk in July of this year, and the *Satsuma* and *Aki* in September. These were sunk in Japanese waters. The *Kashima* and the *Ikoma* are being scrapped at Nagasaki by the Mitsubishi Dockyards. The *Katori* is being scrapped by naval workers at the naval port of Maidzuru. The *Ibuki* is being scrapped by the Kawasaki Dockyards at Kobe. The *Kurama* is lying at Hin near the naval port of Sasebo, and she is being destroyed by the Kobe Steel Manufacturing Co. The *Tosa* and the *Amagi* which were not completed at the time of the Washington Conference, and on which no further work was done, are being scrapped. The *Tosa* is at the Kure Naval Station and the *Amagi* at Yokosuka. All these ships will be no more by the time limit set. The only other battleship falling under the terms of the treaty is the *Mikasa*. We have requested the interested powers to allow us to retain this warship as a national memorial to commemorate the naval victory of Admiral Count Togo during the Russo-Japanese War. England and France have given their official sanction to this request, and we confidently expect a favorable answer from the United States shortly.

All capital ships to be scrapped under the treaty must be disposed of within six months after the exchange of ratifications. This exchange took place August 17, 1924, and the six months expires February 17, 1925.

Japan is not permitted to add a new battleship to her fleet until 1934, when the *Kongo*, plans for the construction of which had been

made but which had not been started, may be replaced. This replacement can be started in 1931.

Submarine carrier-pigeon service

[Source reliable]

The naval authorities attempt to establish communication between warships and one of the naval ports by means of carrier pigeons aboard submarines has been attended with success, according to an announcement by the Kure naval port.

About 5,000 carrier pigeons have since last September been trained in this service by the submarine school at Kure and an experiment was made last week-end in Hiroshima Bay when the pigeons succeeded in performing their work most perfectly after an underwater cruise of over four hours in submarines.

The new service of carrier pigeons will accordingly be introduced in the navy with the beginning of next fiscal year, and for this purpose a special submarine carrier pigeons corps will be organized for each flotilla of submarines.

Newly bought flying boats found good on air trial

[From Japanese press]

The official air trial of the all-metal Dornier flying boats newly purchased by the Kasumigaura naval air force was commenced at 11.50 a. m. on December 8, in the presence of the designer, Doctor Dornier, Admiral Suzuki, Rear Admiral Fujiwara, Lieutenant General Yasumitsu, chief of the army air department, Rear Admiral Komatsu, commanding the naval air force, and others concerned. The Dornier-Libelle machine was operated by the German aviator, Mr. Just, carrying Lieutenants Kondo, Akashi, and Miura, as passengers. The larger craft, a Dornier "Wal," flew twice with 27 passengers aboard. The results were good in all the cases.

Establishment of new bombing squadron at Chinkai Bay

[From Japanese press]

It seems likely that a naval aviation squadron will be established on Chinkai Bay, Korea, during the coming fiscal year (April 1, 1925–March 31, 1926). Press reports state that the new establishment will be a bombing squadron.

POLAND

FUTURE BUILDING PROGRAM

[From German press]

In October, the Polish minister of war (Sikorski), and Admiral Porebski, went to France and while there visited the harbors of Cherbourg and Toulon.

In Cherbourg they witnessed maneuvers of the naval and air forces. The purpose of the journey among other things was to order torpedo boats and submarines whose cost is to be defrayed from the French loan of 400 million francs. This visit attracted considerable attention in England and the Polish-French naval plans were discussed in detail in the English press.

The Polish Government has also approved the naval construction program prepared by Admiral Porebski, which comprises the construction within the period of 12 years of the following:

Three cruisers, 6 destroyers, 12 torpedo boats, 12 submarines of *New Requin* type, 36 small torpedo boats (for coast protection).

The cost is estimated at 650 million zloty.

PORTUGAL

NAVAL ESTABLISHMENT—TACTICAL ORGANIZATION

December, 1924

Ships.—*Vasco de Gama* (old battleship, 1876); reconstructed in 1902; 2,982 tons; rearmed in 1922: 1 gun 8-inch, 40 caliber; 1 gun 6-inch, 45 caliber; 1, 4-inch, 40 caliber; 6, 14 pounders.

Protected cruisers.—*Almirante Reis* (1896), 4,186 tons. *Sao Gabriel* 1899, 1,809 tons, both to be sold December 20, 1924. *Adamastor* (1896), 1,729 tons. Dismantled in 1919 and is still refitting.

Destroyers.—*Vouga* (1920); *Tamaga* (1921); *Douro* (1913); *Guadiana* (1914); *Tejo* (1901), rebuilt 1917, 526 tons.

Torpedo boats.—*No. 2* and *No. 3*, constructed in 1866, 66 tons.

Patrol boats.—*Ave*, *Sado*, *Liz*, *Moudego*, 250 tons; ex-Austrian (torpedo tubes removed). These are only half armed at present.

Submarines.—3 260/389 tons (1915-1917); 1 245/300 tons.

Fleet-sweeping vessels (sloops).—*Republica*, *Corralhao Araujo* ex-Britisher *Flower* type. Now in commission, fully armed and manned.

Auxiliary cruiser.—Does not figure in list of the fleet.

Gunboats.—*Bengo* (1917); *Mandovi* (1917); *Quanza* (1918); *Beira* (1910); *Ibo* (1910), all 463 tons. *Sare* (1908); *Lurio* (1907), 205 tons. *Patria* (1903), 626 tons. *Faro*, *Sago*, and another to be named, building at Lisbon. (*Beira* type); *Limpopo* (1890), 288 tons. *Acor* (1874), 330 tons.

River gunboats.—*Macau* (1909), 133 tons. *Rio Minho* (1904), 38 tons. *Flecha* (1909); *Teta*, 70 tons; *Sena*, 70 tons.

Mine layer.—*Vulcano* (1910) 151 tons.

Transports.—*Salvador Correa* (1895), 300 tons; *Pidena*, and *Gil Eanes*.

Armed launches.—2 ex-British subchasers.

School ship.—*Sagres* (sail).

A colonial division has been created: it comprises the *Republica*, the transport *Gil Eanes*, the three gunboats *Bengo*, *Beira*, and *Ibo*. This division left Lisbon in October on a visit to the Portuguese colonies.

Personnel

Officers :

| | |
|------------------------------------|-----|
| Naval (line) ----- | 322 |
| Naval constructing engineers ----- | 16 |
| Medical ----- | 55 |
| Mechanical engineers ----- | 78 |
| Administrative officers ----- | 88 |
| Total ----- | 559 |

| | |
|--|--------|
| Auxiliary officers (specialists in artillery, machinists, telegraphy, carpentry, etc.) | |
| similar to Officers des Equipages in France ----- | 197 |
| Noncommissioned officers and men ----- | 5, 157 |

RUSSIA

BUILDING PROGRAM

January, 1925

[From German press]

The practice cruise of the Baltic Fleet in September furnished the Russian newspapers with material for many exaggerated reports. Even though the latter may not be taken seriously, nevertheless it should not be overlooked that with this trip Russia again enters the lists as a comparatively strong naval power in the Baltic and that it will depend on the further conformation and training of the fleet whether or not it will again be called on to play a rôle. According to newspaper reports, the Government intends to renew or complete the ship material. The new building program comprises: Baltic: 2 cruisers; 4 destroyers. Black Sea: 4 cruisers; 8 destroyers; 8 submarines and 6 mine ships. Far East: 6 gunboats.

RUSSIA

NAVAL NOTE

According to the Russian press the War Department has ordered 330 Fokker machines in Holland and 200 machines of the Savaya type in Italy, and 40 tanks from the Fiat works. Large orders have also been given in Sweden, among them, 65 motors for submarines. The Fokker Company is to establish branch factorais at Moskow and Twer.

SWEDEN

NEW DESTROYERS

December, 1924

An order for two new destroyers, the *O. H. Norden Sejuld* and the *Nils Ehrenskjold*, has been placed with the Götaverken, of Göteborg, and the Kochans Mechanical Workshops at Malmö as principal suppliers, and the de Laval's Steam Turbine Co., of Stockholm, as manufacturers of the propeller machinery, etc. For the purpose of investigating whether any improvement could be made upon the plans of the navy administration, representatives of the above-mentioned firms and Navy Head Director Johannes Lindbeck recently left for England together. They visited England and Scotland to study the new inventions in this connection and found that the lines, machinery, and plans of the ships were as good and in some cases better than the foreign ones. Only as regards a certain number of auxiliary machines was it possible to find greater improvements.

The plans prepared have now been definitely accepted.

The length of the ships will be 91.40 meters, the breadth 8.88 meters, draft 2.56 meters, displacement 960 tons. The armament consists of six torpedo tubes for 53-centimeter torpedoes and two mine throwers; furthermore, three 12-centimeter and two 40-millimeter automatic rapid-fire pieces, which is powerful armament for such small ships. The destroyers are also to be equipped with searchlights, fog generators, etc (smoke screens).

Speed will amount to 36 knots at least, developed by two 13,000 horsepower Laval steam turbines—a total machine power of 26,000 horsepower per ship. The turbines will be geared. Especial importance has been paid to the fuel economy for so-called "economic speed" (formation speed), about 20 knots, while maintaining low steam consumption. These two conditions are difficult to combine, but are fulfilled in an excellent manner by this steam turbine system.

Of course the greatest care has to be taken in construction in order to bring down the weight of the machinery to the lowest possible figure, without endangering the reliability of the ship. In this case the weight of the whole machinery, including boilers and auxiliary machines, is calculated to amount to only 320 tons.

A novelty for the Swedish Navy will be introduced upon these ships, as the boilers will be equipped with superheaters for the purpose of saving fuel consumption.

The two destroyers are to be ready for delivery within two and a half years. It is of great advantage and favorable for our war

preparedness, the Svenska Dagbladet comments, that a delivery of this kind can be given to its whole extent to Swedish manufacturers without having to cut down the demands for the best.

The Swedish Government has empowered the Swedish Navy Department to enter into a contract with the English firm, Thornycroft, for the construction of two motor torpedo boats to replace two at present in commission. The Reichstag has already appropriated the necessary funds.

SWEDEN

New naval dry dock, January, 1925

The dry dock of the Swedish Navy at Beckholmen, which has been under way for the last few years, will be finished in 1926. No less than 50,000 cubic meters of stone have been extracted, which has been used to make the western quay. There now only remain about 6,000 cubic meters to be blasted. The new dry dock was begun in 1920 as relief work. Later on it was postponed and was taken up once more in 1923. It is the largest one in Sweden and is to furnish space for the warships of the F type as well as for Sweden's largest freighters.

TURKEY

NAVAL NOTES

January, 1925

The Turkish Navy is composed of the following major units:

The iron-clad *Torgoud-Reiss*, recently repaired.

The cruisers *Hamidie* and *Medjidieh*.¹

The destroyers *Tachos*, *Younous*, *Peick-I-Chefket*, and a half dozen gunboats.

Submarine purchases.—The ministry of national defense has elaborated a project specifying the purchasing conditions by adjudication of several submarines.

Capt. Chukri Bey, who studied the construction of this type of vessel in England and Germany, as well as several other naval offi-

¹ The history of the *Medjidieh* is of some interest. During the war this vessel was sunk by a mine near Odessa and was later refloated by the Russians. Following the signature of the Brest-Litovsk Treaty the *Medjidieh* was found docked at Sebastopol, its boilers having been removed for repairs, and a lot of the material lay scattered about the docks. The vessel was towed into Turkish waters and the material under repair was forwarded later. It is still in the packing cases and at the present time an attempt is to be made to complete the repairs which have been interrupted for so long a time.

cers, have been invited to supervise the negotiations for their acquisition. It is expected that a number of foreign companies will submit bids, of which Armstrong, Ansaldo, Chantier de la Loire, and Electric Butt Company, are mentioned.

According to a local paper the following bids are supposed to have been received :

1. A French proposal to furnish two units already built.
2. A German proposal to construct the required number of submarines.
3. An American proposal to construct the ships in Turkey and to accord a credit of four or five years if desired.

On November 24, the Constantinople Gazette announced the departure of a commission headed by Chukri Bey for France, Italy, and Sweden, in this connection. It appears that the Turkish Government was about to award the contract for the construction of the units required to the French company, Chantier de la Loire, but at the last moment Capt. Chukri Bey opposed the award, presumably because he deemed it unwise to give the contract to a company who apparently had never executed work of this kind before. Local papers state that he has been given full power to contract for the Government, and it is intended to send a number of Turkish naval engineers to assist in the construction of the submarines ordered. A number of other officers are to be detailed likewise for service in foreign shipyards to familiarize themselves with the handling of this type of vessel.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

NUMBER 3—1925

MARCH, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

NUMBER 3—1925—MARCH, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

| | | |
|--|--|-------------|
| BRAZIL: | | Page |
| Aerial flight Rio Janeiro-Buenos Aires----- | | 1 |
| Note ----- | | 2 |
| DENMARK: | | |
| Danish recoil rifle syndicate----- | | 2 |
| FRANCE: | | |
| Visits of inspection to airplane factories----- | | 3 |
| Naval notes----- | | 10 |
| GERMANY: | | |
| German opinions regarding the use of gas in warfare----- | | 10 |
| Referendum on the colors black-white-red----- | | 13 |
| Speech of German-Soviet-Russian relations----- | | 13 |
| Comments on dirigibles----- | | 15 |
| GREAT BRITAIN: | | |
| Torpedo control and armament----- | | 17 |
| Visit to Erith plant of Vickers (Ltd.)----- | | 25 |
| Naval notes ----- | | 27 |
| ITALY: | | |
| Visits to aircraft factories and stations----- | | 35 |
| Naval notes ----- | | 36 |
| JAPAN: | | |
| Movements of fleet----- | | 38 |
| Naval notes ----- | | 40 |
| LETTLAND: | | |
| Naval note ----- | | 42 |
| RUSSIA: | | |
| The Baltic Fleet----- | | 42 |
| The Caspian Fleet----- | | 45 |
| Notes----- | | 45 |
| TURKEY: | | |
| Naval note ----- | | 51 |
| UNITED STATES: | | |
| Naval points against a united air force----- | | 52 |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

LIBRARY OF THE
RECEIVED
MAR 30 1925
ARMY WAR COLLEGE

BRAZIL

AERIAL FLIGHT RIO JANEIRO-BUENOS AIRES

January, 1925

Trial flight of three planes owned by a commercial company for the purpose of establishing an aerial mail service between Rio de Janeiro, Brazil, and Buenos Aires, Argentina

On January 14, 1925, three Bréguet biplanes left Campo Affonsos, the Brazilian Army's aviation school, situated a few miles out of the city proper of Rio de Janeiro, at 5 a. m. and headed south for a trial flight to Buenos Aires, Argentina. The purpose of this flight was to assure the Brazilian and Argentine authorities of the feasibility of establishing mail service between these two points by air. One pilot carried a letter from President Bernardes of Brazil to President Alvear of Argentina. All planes reached their destination at 4 p. m. January 16. Four stops were made en route. The company instigating this service was organized in France and is known as the Compagnie Générale d'Entreprises Aeronautiques Ligne Latécoère, and is represented in Brazil by Prince Charles Joaquim Napoleon Murat, one of its directors.

The machines used are Bréguet biplanes, technically known as type 14-H-2. The bodies of the planes are half aluminum, and they are equipped with Renault 350-horsepower motors. The upper spread wings are 14 meters and the lower spread wings 12 meters. The total length of the machines is 9 meters, height 3 meters. Their total weight in the air is 1,800 kilos, of which 350 kilos are for passengers or cargo. The flying radius of these planes is 900 kilometers. The distance between Rio de Janeiro and Buenos Aires is 2,340 kilometers. Their velocity is said to be from 150 to 190 miles per hour, according to height of flying. The stops made were at Paranagua, 620 kilometers; Porto Alegre, 660 kilometers; Montevideo, 780 kilometers; and Buenos Aires, 280 kilometers.

The Rio de Janeiro press loudly praise the efforts of the enterprise, and it is predicted that successful operations of a mail service between Rio de Janeiro and Buenos Aires will now only be a matter of time.

BRAZIL

NOTE

January, 1925

French military mission

On January 27, 1925, General Frederic Coffee, of the French Army, assumed leadership of the French military mission to Brazil in substitution of General Emile Gamelin, who has held the position since 1922.

The entire officer body of the French military mission remains in Brazil.

DENMARK

DANISH RECOIL RIFLE SYNDICATE

February, 1925

A visit was made to the Danish Recoil Rifle Syndicate at Copenhagen and I was shown over the factory by one of the directors of the company. The plant is situated in the free harbor of Copenhagen. There is one building two stories high and very compact. The factory employs 300 men at present, running at about 66 $\frac{2}{3}$ per cent capacity.

This company manufactures the Madsen machine gun. They can make 2,400 machine guns per year, including all necessary equipment. At present they have the following orders for Madsen machine guns:

| | |
|---------------|-----|
| (a) Argentina | 50 |
| (b) Bolivia | 100 |
| (c) Esthonia | 600 |

They also are manufacturing some for the Danish volunteer force and for Bohemia—number not given. In the assembly room, there was a pile of 42 barrels which I was told were being manufactured for the Danish volunteer force.

The company has brought out a new automatic rifle firing five shots. They have not yet begun to manufacture this rifle, except test pieces. They propose to conduct tests in the United States in the spring.

The personnel seem very intelligent. The company adapts its gun to different calibers and sizes of ammunition that may be desired by purchasers. Each one of the countries mentioned above uses ammunition of different caliber and size, necessitating separate and special equipment for each of those orders.

I was informed that this machine gun was also being manufactured by the Government factory.

FRANCE

VISITS OF INSPECTION TO AIRPLANE FACTORIES

January, 1925

Blériot Company

On January 20, 1925, the works of the Blériot Co., located on the Seine, just south of Paris, was visited for the purpose of inspecting the aircraft under manufacture at that plant, with particular reference to the seaplanes being manufactured in those works by Mr. Blanchard. An order for 20 of these seaplanes was placed recently by the French Navy, and the order has been practically completed, the last nine being on the floor in a fairly complete state of assembly.

The Blanchard BH-3 has the following general characteristics:

| | | |
|--|-----------------------|------------|
| Span | -----feet-- | 62. 33 |
| Length | -----do---- | 45. 42 |
| Height | -----do---- | 13. 44 |
| Chord | -----do---- | 8. 45 |
| Wing area | -----square feet-- | 914. 94 |
| Weight, empty | -----pounds-- | 5, 434. 39 |
| Weight of fuel | -----do---- | 1, 179. 47 |
| Useful load | -----do---- | 2, 060. 28 |
| Total weight | -----do---- | 8, 674. 14 |
| Loading per square foot | -----do---- | 9. 38 |
| Speed at ground level | -----miles per hour-- | 104 |
| Climb: 3,280 feet in 6 hours 30 minutes: 6,561 feet in 16 hours: | | |
| 9,842 feet in 29 hours. | | |

The engines are two 300-horsepower Hispano-Suiza mounted as pushers. The engines will be mounted as tractors in the next type, as it was said that many propellers had been broken in the pusher types due to loose articles going back into them; and, further, that the pusher arrangement caused an excessive flapping of the wing fabric of the lower wing just forward of the propeller.

The BH-3 has four seats: one in the bow for gunner bomb dropper, two pilot seats side by side similar to F-5 arrangement, and one gunner mechanic in the after part of the hull. The ordinary crew is three, the second pilot acting as gunner bomber.

The bomb sight is mounted on the top of the bow, just forward of and to starboard of forward cockpit. It has a pilot direction apparatus to pilot's cockpit. No sights were in place, but from the mounting it was obvious that some form of open bar sight is used. There was a bracket just forward of and to port of forward cockpit, and it was said that a compass is mounted on this bracket. It appeared that both bomb sight and compass would be very wet while taxi-ing and also that they seriously interfered with the operation

of mooring and unmooring. A mooring pendant of F-5 type was fitted on bow.

Concerning the general form of the BH-3, it was noted that the wing section is rather thick, and that the hull is of the V form, the amount of the V from bow to step; in fact, the step is almost flat and is only about 3 inches at center line and 5 inches at side. The after part of the hull is also V in form, but there is no secondary step. The hull construction is similar to F-5. Two layers of diagonal 3-ply planking are used on bottom with the usual glued fabric between the layers. The after part of the hull swings upward after the manner of the old Tellier.

Four bomb racks are installed, two on each lower wing. There is a flare rack on each wing outboard of the bomb racks.

The principal other work, observed at the Blériot plant was the construction of Spad 61's and of Blériot training airplanes. The Spad 61 is a single seater fighter biplane and is equipped with either Lorraine-Dietrich 450 horsepower or Jupiter engine. It is of wood and wire construction, and has a molded 3-ply fuselage. The following are the general characteristics:

| | Spad 61, Lorraine- Dietrich engine | Spad 61 511, Jupiter engine |
|-------------------------------|---|-----------------------------------|
| Length.....feet..... | 21 | |
| Span.....do..... | 31 | |
| Height.....do..... | 10 | |
| Surface.....square feet..... | 291 | |
| Weight, empty.....pounds..... | 2,231 | 1,743.8 |
| Load.....do..... | 1,128 | 1,036 |
| Total weight.....do..... | 3,359 | 2,779.8 |

Characteristics

| | Spad 61, Lorraine- Dietrich engine | Spad 61 511, Jupiter engine |
|---------------------------|---|-----------------------------------|
| | M. p. h. | M. p. h. |
| Ground speed..... | 160 | 138 |
| Speed at 16,404 feet..... | 130.5 | 120 |
| Speed at 19,685 feet..... | 119.2 | 132 |
| | m. s. | m. s. |
| Climb to 3,280 feet..... | 2 14 | 1 41 |
| Climb to 6,562 feet..... | 4 56 | 3 50 |
| Climb to 9,842 feet..... | 4 40 | 6 19 |
| Climb to 13,133 feet..... | 11 56 | 9 17 |
| Climb to 16,404 feet..... | 13 29 | 13 0 |
| Climb to 19,685 feet..... | 35 19 | 17 26 |
| Ceiling.....feet..... | 20,341 | 20,527 |

A large number of Spad 61's are being built by various factories. The Blériot Co. has installed one of the new 12 W type 450-575-horsepower Hispano-Suiza engines in a Spad 61. This is the same type of engine as was used in the Bernard monoplane which recently

made 277 miles per hour. It should greatly improve the performance of the 61.

Eight of the Blériot two place, side-by-side seat biplane are being built for the Navy for primary training. There is nothing unusual in the design, other than the seating arrangement. It is admitted that the airplane is bad for solo work on account of the large blind area on the off side, but it is claimed that the advantage of having the instructor alongside the pilot for dual instruction offsets that disadvantage. The performance of the airplane could not be ascertained.

Lioré et Olivier

On January 21, 1925, the works of Lioré et Olivier, on the outskirts of Paris, were visited. The factory at present occupies several scattered buildings, but is erecting a new plant on adjacent ground. About 400 men are employed in the factory, which is engaged in certain other work in addition to the manufacture of airplanes.

The principal output of the plant during the past few years has been bombing airplanes and flying boats. The Army bombing type is called the LeO-7, equipped with two 450-horsepower Lorraine-Dietrich engines. This airplane is very similar in type and appearance to the Farman 60, and has no especially interesting features. The series has been finished, so none were available for inspection.

A modification of the LeO-7, designed for naval use, was also turned out, 18 of this type being built for the Navy. The principal modification consisted of construction of two floats, above and partially inclosing the wheels, installation of a tail float, and slight increase of span of lower wing. It is three place, has three hours' endurance, a speed of approximately 110 miles per hour at 13,123 feet. This series had also been finished and none were on factory floor.

A type called LeO-12, consisting of LeO-7 built in metal, was brought out for Army use, and a few were built. It carried a bomb load of 1,102 pounds.

A type called LeO-13 was developed for the Navy and 30 of this type were ordered and built. The type is a flying boat, with two 150-horsepower Hispano-Suiza engines arranged in tandem in a nacelle between the wings. It is normally a three place, with bomber's cockpit in bow, then pilot's cockpit, and gunner mechanic's cockpit abaft the trailing edge. A few were turned out with dual control. The characteristics were not available, but were promised. It is not believed they will be furnished, however. The order had been completed and none were on the floor, but a similar flying boat for commercial use was under construction. In this type passenger

seats (four) were forward and pilot cockpit shaft the trailing edge. It appeared that this portion would be very wet when taking off.

The hull was constructed along lines almost identical with supermarine, viz. a main hull of oval cross section with a false hull carrying the V bottom and terminating in the step. The hull was built of two layers of 3-ply, with fabric between. Spruce longitudinals appeared to be used throughout the hull. The workmanship was good, but it was noted that there was absolutely no means of draining or pumping the false hull. There was also a complete absence of transverse bulkheads.

An experimental type, called the LeO-15 was under construction. This type is an expansion of the LeO-13 and will have three Lorraine-Dietrich engines, all tractors, the wing engines being between the planes, and the middle engine on top of the upper wing. Details of this seaplane were not available but were promised.

Lioré et Olivier are manufacturing 20 Bréguet 14's to the order of the Army. This is a two-seater light bomber, observation, reconnaissance type, equipped with 450 Lorraine-Dietrich engine. It has been superseded by the Bréguet 19, and its details are not regarded as being of interest. It was interesting to note, however, that the wing spars are made of seamless drawn duralumin tubing of rectangular section, and also that the 3-ply leading edge is given a coating of white lead, presumably to keep out moisture and cause better adhesion of the fabric.

The following details of the LeO-13 (flying boat) have been obtained:

| | | |
|--------------|------------------------------------|-------|
| Length | feet... | 38.35 |
| Span | feet... | 62.37 |
| Height | feet... | 13.27 |
| Speed | miles per hour (without floats)... | 114 |

Chantiers Aero Maritimes de la Seine

On January 22 a visit of inspection was made to the works of Chantiers Aero Maritimes de la Seine, commonly known as C A M S. That plant is located in Saint Denis, on the outskirts of northern Paris. It was constructed by the British during the war for the manufacture of field huts. The plant is small, consisting of one large main building and a few small buildings. It employs about 200 men at the present time. The inspection party was shown over the plant by Mr. Hurel, who was the pilot of the C A M S seaplane which competed in the Schneider cup race at Cowes in 1923. Mr. Hurel stated definitely that his company would not compete in the race to be held in America this year, as it could not afford the expenditures involved.

The principal work under way at C A M S is the construction of their flying boat type B-33. Thirty of these seaplanes were ordered by the French Navy and 12 were on the floor. Detail characteristics were not available but were promised. The following characteristics were obtained from inspection and conversation:

Type BH-33:

| | |
|--|----------------------|
| Engines, Hispano Suiza 275's, in tandem..... | 2 |
| Total weight | pounds__ 8, 800 |
| Useful load | pounds__ 3, 190 |
| Endurance, at 100 miles per hour..... | hours__ 8 |
| Speed..... | miles per hour__ 119 |
| Fuel, in 6 tanks..... | liters _ 1, 200 |

Construction is wood and wire throughout.

Three places, pilot, assistant pilot bomber, and gunner mechanic.

The design is straight forward.

Hull is of F-5 L type construction, but there are no sponsons.

Bottom of hull is made in three layers. First layer, fore and aft 3 mm. teak, then fabric, then 2 mm. cedar athwartship, then fabric, then 3 mm. 3-ply. Teak is extended up the sides of hull to above water line, the contention being that the extra weight of that wood is more than offset by its nonabsorption qualities. Longitudinals are of spruce and keel of ash. The large vertical tail surface is of 3-ply and is an integral part of the hull.

The interior of the hull is well arranged. The assistant pilot has easy access to bomber's cockpit forward, and the navigation radio cockpit just abaft pilot's cockpit. There is also a commodious passage between the gasoline tanks to the mechanic's cockpit. The tanks are of aluminum, rectangular in section, and placed three on each side. Tanks have rounded corners and the side walls are welded circumferentially, there being four sections to each tank. Heads are beaded over and welded. There is a mounting for a camera in the mechanic's cockpit, just off the center line. The camera faces vertically downward and there is a door in the bottom of the hull, which door operates in a manner similar to the old Driggs Schroeder breechblock. It was noted that the after scarf ring mount was on a transverse slide.

The bottom of the hull is V-shaped forward, modifying to a very flat V at the step. Aft the step the hull is practically flat. There is no secondary step.

The workmanship appeared to be excellent.

The form of the bow is quite similar to the F-5 L. Mooring pendant arrangement is similar to F-5 L.

The only other work in progress at C A M S was the construction of training flying boats, equipped with one 150-horsepower Hispano-Suiza engine. These boats looked very similar to the old F boats.

Twenty-four had been built for the French Navy and an order of six was just being completed for the Czechoslovakian Government.

Notes

In addition to the information covered in special reports, the following general information has been gathered:

Bernard Ferbois Racing Airplane

It was not possible to see the Bernard Ferbois racing airplane which recently established the speed record on a 3-kilometer course of 278 miles per hour, but certain information in regard to that airplane was gathered from various sources. It is in effect a Bernard Ferbois experimental single-seater monoplane fighter with greatly reduced surfaces. It was stated that approximately 2 square meters of surface had been taken off each wing. This figure may be a slight exaggeration. The result in any case is an extremely high landing speed, said to be in the neighborhood of 120 miles an hour. The airplane is equipped with 450-horsepower 12-cylinder W-type Hispano-Suiza engine which develops 575 horsepower at 2,300 revolutions. A duralumin propeller of the Reed type was used. The assistant military attaché for aviation duties stated that he had been approached by the manufacturers for the purpose of ascertaining if there was any chance of the landing-speed limit under the rules for the Pulitzer race being raised, and it was gathered that there was an idea of this airplane being entered for the next Pulitzer race.

The wings are of the all-wood type rather similar to the construction in the latest Curtiss racers. Landing struts are inclosed in single streamline housing, expanding outward at top and bottom.

ENGINES

The only types of engines which seemed to be under consideration for the new designs were the new 450-horsepower V and W types of Hispano-Suiza and the French-built Bristol Jupiter. The W-type Hispano-Suiza is now in limited production. Its cylinder arrangement is similar to the Napier "Lion," but the engine is much more compact than the "Lion" and can be fitted in airplanes designed to take the 300-horsepower Hispano-Suiza. It is understood that the difference in weight between the 300 and the 450 is approximately 64 pounds.

The new V type 12-cylinder Hispano-Suiza resembles in appearance the Curtiss D-12, and it is understood that its design was to a considerable extent a copy of the Curtiss D-12 which was shipped to

France about a year ago. The general impression seems to be that the V type is a better engine than the W type, and that its design is more suitable for installation in the smaller types of airplanes.

The French-built "Jupiter" is being turned out in considerable quantities and is being used to replace "Salmons" in heavy bombing airplanes and seaplanes, and also to a considerable extent to replace Lorraine-Dietrichs.

Very little additional information could be learned regarding the Salmson air-cooled radial engine mentioned in Naval attaché report No. 1327 (confidential) of September 22, 1924. It appears, however, that there has been some difficulty with this engine, for whereas it was understood an order for 200 had been placed, it has just been announced in the press that this order has been canceled and that the Salmson plant has closed down.

Special arrangements have been made to obtain details of the Hispano V and W types, and the information obtained will be forwarded in a later report.

Seaplane and flying boat design

The impression was gained that whereas the construction work especially on flying boats was good, the design was bad, and indicated either a lack of appreciation of the requirements of a seaplane for open sea work, or else the definite adoption of a policy to restrict the design to types which would take off well in harbor waters but which would not stand much of a sea either for landing or taking off.

It was noted that wherever bridles or other devices were fitted for mooring the seaplane, these fittings were either of bad design or such light construction as to render them of little value.

Most of the naval aircraft under construction or on order are twin or tandem engined flying boats built for bombing. The various types have been described in previous reports.

General

Previous impressions that naval aviation in France is receiving comparatively little attention were confirmed. French naval officers on aviation duty stated that no experiments were being carried out at the present time in regard to arresting gear. No trace of any such experiments being conducted could be found. The work on the *Baern* is said to be progressing very slowly, and no one would venture to even estimate a date of completion for that vessel as a carrier. Torpedo planes and torpedo-plane work in general seemed rather elementary and indicated a lack of interest.

No information of value could be obtained regarding fleet spotting. Certain of the ships based in the Mediterranean are equipped with turret flying-off platforms, and aircraft are occasionally carried to sea on these ships and flown off, but no one could be found who knew or would admit knowing anything about spotting methods or instruments employed.

FRANCE

NAVAL NOTES

The destroyer *Cyclone*, 1,400 tons, was launched January 24, 1925.

A telegram from Cherbourg to the Morning Post, February 6, states that the French Government has given orders for a station for powerful bombing airplanes to be constructed to the east of Cherbourg. The preliminary work of making the ground suitable for the landing of airplanes has already been begun on the outskirts of the town. The new station, which will be the most important in France, will be controlled by the French naval authorities. Two triangular masts, 125 feet in height, are to be erected in the station for naval aviation wireless purposes.

GERMANY

GERMAN OPINIONS REGARDING THE USE OF GAS IN WARFARE

(Translated from French Press.)

January, 1925

1. The following German opinions are forwarded for information as indicating the trend in gas warfare thought and development in Germany at the present time:

Article 171 of the treaty of Versailles contains the two following paragraphs:

"The use of asphyxiating gases, as well as all liquids, materials, or analogous substances, having been prohibited, the manufacture and importation of them is rigorously forbidden in Germany.

"The same thing holds true for material especially destined for the manufacture, conservation, and use of the said products or processes."

This clause of the treaty has been observed in Germany in the same manner as the other military clauses: that is to say, within the limits of control exercised by the Interallied Commission. Since the beginning of 1923 it can be believed that such control is practically nonexistent.

Under these conditions it is interesting to gather from German sources themselves some information regarding the ideas on the subject which are current in the German Army.

* * * * *

All the German regulations published in the last few months foresee the use of gas. We cite the principal ones.

Führung und Gefecht (conduct and combat of troops of all arms operating in liaison) contains the following passages:

PAR. 344. In an attack in a war of position "gas shells are used against battery emplacements, camps, and certain other positions, for example, the points of presumed assembly of reserves: also to infect obstacles in zones which can not be traversed (franchises) by the attacking troops, to prevent lateral enemy liaison, and to establish gas barrages as a protection for the flanks and as a surrounding screen. * * *

"In the course of artillery preparation it is good to fire alternately gas and explosive shells and to combine toxic and normal fire with emissions of gas."

Par. 391. "On the defensive in a war of position, counterbattery work must not be neglected. A bombardment of gas shells, interposed at times, may have important effects."

Par. 392. "For harassing the enemy, fire with gas shells often gives good results."

Par. 405. "By means of massive and methodical fire with gas shells the preparations of the adversary may be paralyzed."

Par. 425. "In fighting, in woods, the assailant takes the position by neutralization (boquetaux) through envelopment and bombardment with gas."

Chapter XIV of Führung und Gefecht, which appeared June 20, 1923, set forth in eight pages (pars. 594-695) the teachings of the war upon the use of gas, whether by means of a cloud, or the use of projectiles fired by cannon minenwerfer, or special projectors, or even dropped from airships.

The following are the essential passages:

Par. 594. "In many cases combat gas has only the rôle of troubling or disquieting the enemy. By frequently alarming them or forcing them to wear the mask for long periods of time, without change, one fatigues them and diminishes their combative valor.

"The effective duration of gases varies according to their peculiar characteristics. The assailant will content himself by using gases which will not prevent his progress over the zone which he intends to cover with gas.

"The defender, also, is likewise to use gases which will prevent or interfere for hours or days with the offensive activity of the enemy."

Par. 595. There are various ways of using combat gases: "In the process of the emission of gas, the cloud must be pushed by the wind in the direction of the enemy and toward the interior of his lines.

"In the process of throwing or of fire, the substance producing the combat gas is inclosed in bombs or other projectiles which are thrown or fired against the enemy. When these projectiles burst upon arriving at their goal the substance is broken up into a fine gas mist.

"It is not possible any more to launch gas bombs from the height of balloons or airplanes." (Note: The meaning of this sentence is not understood, particularly in view of the initial statement of this paragraph and of paragraph 500.)

Par. 596. "In attacks by emission of gas, the combat gas is sent in very great density upon a very wide front, upon the advance elements of the enemy. The disadvantage of this procedure is that it depends so much on the wind and on atmospheric conditions."

Par. 597. "Special projectors (Gaswerfer) are riveted to their emplacements. Considering the inevitable preparations, which their installation necessitates, they can be shielded from observation only with great difficulty.

"Their action can extend to 3,000 meters and is superior to that of artillery or minenwerfer. The arrival, en masse, of gas bombs, causes so sudden a submersion in gas that, when confronted by it, the battle discipline against gas is often completely powerless."

Par. 598. "Gas shell fire does not depend on wind and time in the same measure as the emission of gas; however, atmospheric conditions greatly effect its efficacy, hence, also, the possibilities of its use.

"Shell fire does not necessitate any preparation especially inherent in the conditions peculiar to a war of position; this fire is equally applicable in a war of movement.

"The surprise of the adversary, which renders the use of gas particularly efficacious, is easily realized by gas shell fire. The great range of artillery and the mobility of its fire augments the value of gas shell fire.

"In order to cover effectively great extents of terrain, it is necessary to employ great quantities of munitions."

Par. 599. "The dropping of gas bombs by airplanes does not produce a density of gas which will be efficacious over a great extent of terrain. The points of fall of the bombs amount to isolated shots—they can only annoy the adversary and force him temporarily to use the mask."

Par. 600. "The use of combat gas depends upon the peculiar nature of these gases and upon the results to be obtained.

"In a war of movement, as in a war of position, gases liberated by surprise upon troops on the march, troops in waiting, and reserves upon the roads, the defiles, and the locations, disturb the enemy's movement and offensive attitude and disquiet him in his cantonments. Efficacy is augmented by frequently changing the objective, the hour of fire, and the nature of the gas.

"By gasing nests of enemy resistance, battery troops, observatories, and posts of command, one can paralyze their activity and, if the circumstances are favorable, entirely annihilate them."

Par. 601. "While combat gases can be thus utilized to all possible ends, their use en masse is, however, reserved to the high command.

"In an offensive, it is advantageous to employ them when they will serve to give a particular dash to the beginning of an attack directed against an enemy installed in a fortified position, or to relaunch, by putting new forces into play, an attack which has been arrested."

Par. 603. "An attack with an emission of gas will have a chance of being crowned with success only if it is carried out upon a front so large that the section upon which the assault is made can not be taken in flank by weapons brought up by the enemy.

"In an attack with emission of gas, the infantry must follow the gas cloud as closely as the nature of the gas and its own security permit."

Par. 604. "Fire of special projectors (gaswerfer) must be concentrated upon the points particularly important to the enemy."

Par. 605. "The launching of artificial, inoffensive fogs upon the advance enemy position, following the launching of noxious gases, favors the irruption by surprise of assault troops. This gives, in addition, the advantage of marching without masks upon an adversary annoyed by measures of protection against gas which it is taking."

Par. 609. "Gases which deposit on the ground an irritating substance, the efficacy of which persists for a long time, can not be employed in an offensive, for the assailant would himself be placed in serious danger by the infection of the terrain. Such gases are an efficacious arm in a defensive to prevent access of the assailant to certain zones of a specific terrain, or to render such access very costly to him."

GERMANY

REFERENDUM ON THE COLORS BLACK-WHITE-RED

(From German Royalist Press)

January, 1925

The Reichstag fraction of the German Nationalists decided to bring about a settlement of the flag question through a referendum, since according to the constitution the adoption of the colors white-red-black does not have the necessary two-thirds majority in the Reichstag.

The Reichstag fraction also declared it imperative that the German Government immediately take steps to guarantee Germany's rights in the evacuation of the Ruhr and the Cologne zone on January 10.

One can doubt very much if this is the proper time for a settlement of the flag question—considering the extraordinary expense attached to a referendum. However, there can be no doubt whatsoever that there is no majority to-day in favor of black-red-gold.

After the Reichstag elections we referred to the extraordinary decrease of the black-red-gold votes since the elections for the national assembly in 1919 and the tremendous increase in the black-white-red votes since that year. At that time there were only a comparative few who stood by their old flag. Gradually wider circles remembered the colors black-white-red represented the German ideal of military heroism and leadership—that these colors are those under which the field-gray army offhield for years the overpowering attacks of the enemy. The feeling for these colors has been strengthened by the unheard-of conduct of the black-red-gold flag that now brought even the indifferent to the realization that these colors have become solely party colors embodying pacifism and internationalism.

It is truly no mere superficiality whether one or the other of these colors waves over Germany; even foreign countries will take the resumption of the old colors as a sign that Germany has made up its mind at last that it will again turn itself to the virtues that once made it great. Therefore one should welcome every attempt to rectify the National Assembly's change of colors that can only be looked upon as an error.

GERMANY

SPEECH ON GERMAN-SOVIET-RUSSIAN RELATIONS

January, 1925

At the conference of the textile workers of the Soviet Union, the chairman of the Soviets and Peoples Commissar of the Soviet Union, Rykow, delivered a long speech regarding the foreign policy and the international situation of the Soviet Union. In the course of his speech, Rykow made the following remarks regarding Germany:

Germany has entered a new phase of political history, and this new phase is determined by the Dawes plan. The most important features of the Dawes plan are that France will be forced to evacuate the Ruhr, the Ruhr district

will be restored to Germany and Germany will receive a loan whereby Germany will be placed in a position to pay the so-called reparations. The guaranteeing of the reparations payments is foreseen first in the foreign control of the German railways; second, in the control of the bank system, and third, in the control of the imports and exports of Germany for the purpose of guaranteeing the reparations and also to control the tax receipts of the best sources of taxation of the German budget, viz. taxes on alcohol, tobacco, etc.

What does that mean? It means that as a result of the Dawes plan Germany loses its political independence. The economic system of a nation can not be guided without banks, without railways, and without the possibility of having full control over the taxes. The Dawes plan means the final loss of the economic independence of Germany and the transformation of Germany into a colony of western European capital. Through this system of control of the German railways and other branches of its economic system, which I have stated here, a systematic plundering of Germany is foreseen to guarantee reparations payments to France, Belgium, and other nations mentioned in the peace treaty of Versailles. The Dawes plan also caused important changes in the political structure of Germany. At the present time certain classes in Germany are laboring under the illusion that this plan will help Germany out of the predicament that it got into during the Ruhr occupation. The conditions of execution of the Dawes plan are such that they increase the taxes of the entire German population, especially for the laborer. These conditions have already led to the discontinuance of the 8-hour working day and a reduction in the standard of living of the German workman. According to the agreement the bourgeoisie will receive a loan while the workmen will have to pay the interest on this loan and the reparations. It will require a certain period of time before the negative sides of the Dawes plan become apparent, which in its entirety constitutes a loop-knot which is drawn tighter month by month around the whole German nation; a certain period of time is necessary in order for the German people to feel and recognize this loop knot and to realize that it can not breathe under the Dawes plan. At the present time Germany is going through that stage of development of the Dawes plan where the loan is being received and there is a possibility of improving the present situation of the industry. The German Government, based on on the Dawes plan, has dissolved the Reichstag and is attempting to destroy the two extreme wings of the Reichstag, the Communists and the German reactionary party. So far as can be judged from the German press, this may succeed for a while, i. e., there is the possibility that during the immediate future the importance of the Communist Party in the Reichstag will be reduced. Very probably this will not last longer than is necessary for the German people to realize the meaning of the Dawes plan and to see that it is not better than the tactics and methods employed by Poincaré against Germany.

Our relations to Germany, however, can not be determined by temporary political combinations. During the future development of international relations it is beyond doubt a fact that Germany and Soviet Russia will become more and more closely bound together. Regardless of the composition of the German Government, in time it will find itself compelled to look toward Russia. The Soviet Union, with its improving economic conditions, presents a majestic market for the employment of the attainments of German industry, and Russia can supply the German industry with raw materials, as well as grain, meat, and food supplies. This is a basic economic factor. For this reason we also place the greatest importance upon the commercial negotiations which were commenced recently in Moscow after the German delegation had arrived. The interests of both nations—both peoples (the German people and the peoples of

the Soviet Union)—lie in a real, permanent commercial treaty, which should be concluded by the present delegation. In this connection it should be mentioned that the interests of both countries demand ever greater cooperation on the subject of political economy.

GERMANY

COMMENTS ON DIRIGIBLES

[From Mannheim Press]

It was in Bremen in the autumn of 1916, when the commercial submarine *Deutschland* returned from its first trip to America, that I heard Count Zeppelin say that it was his last ambition to fly one of his own airships over the ocean to America. This remark showed that Zeppelin himself viewed his airships principally as a means of long-distance transportation and not as instruments of war. We have got this far now. One must have talked with the pilot of the *ZR-III* and his fellow workers to know with what absolute confidence they contemplated the airship's transoceanic flight—scarcely different from the way the captain of a new high-speed steamship views his first trip to New York.

The performance of the *ZR-III* should now be the decisive factor in the development of large airship lines. A vital factor in the question is the fact that long-distance traffic with Zeppelin ships is an undertaking which in the present state of German airship technic is profitable and self-supporting, while all long-distance airplane service is still nonsupporting. For us the principal question is whether the dictators of Versailles will permit us to collaborate in such a development of an international airship service.

With the delivery of the *ZR-III*, whose construction to the credit of the reparation account was a concession to America, the terms of the Versailles decree again go into effect, article 198 stating that Germany may not own a dirigible.

The Versailles treaty, with all its clauses regarding the delivery of war material, was aimed principally at the airship and to prohibit it in Germany. But the rôle of the Zeppelin as a military weapon is definitely played out. A deadly foe has been developed in the airplane. If we had engaged all the airships and the entire fleet against England right at the very beginning as the Zeppelin people wanted us to do, then the war probably would have ended differently. But the somewhat timid airship attacks against England, with long intervening pauses, gave the enemy time to develop its defense very thoroughly with balloon guns, searchlights and, above all, with airplanes, just as it later developed its antisubmarine defense so that the success of the airship attacks became more and more problematic. Because of the rapid airplane which threatens the airship from above, the Zeppelin filled, as it is, with hydrogen gas, is no longer considered as a military weapon. It has again resumed its status of long-distance transport ship and belongs to humanity as a whole.

This is no mere "façon de parler." For as painful as it may be, there has been no such thing as a real Zeppelin construction secret for a long time now. This ceased theoretically when the first Zeppelin wreck fell in enemy territory; it had ceased to exist in a practical sense when the newest and best Zeppelins were delivered to France and Italy, and since very efficient Zeppelins have been built in America by German engineers. Friedrichshafen spoke in terms of great praise of the flight performances of the pilot of the *Dirmuiden*

which was lost in the Mediterranean from unexplained causes. It is playing a fatal ostrich political game to assume that the French, who are still in possession of another German airship and are making flights with it continually, have not deduced knowledge and experiences therefrom and will now not soon begin to construct airships themselves after this pattern. This can be counted on quite definitely owing to France's former activity in aeronautics. What we Germans now demand and *may* demand owing to the performance of the *ZR-III* is that we be allowed to continue to work on the further development of the airship as a possession of international culture.

At the present moment the Versailles decree whereby all airship hangars built since 1914 must be destroyed and whereby Germany may build no airships makes such a thing impossible. The Friedrichshafen shed is now threatened by such destruction—the other three small sheds which exist in Germany need not be taken into serious consideration. The Friedrichshafen hangar really consists of three sheds—two small ones of 170 meters length, the first of which was constructed in 1908 from Zeppelin funds and in which the airships *Deutschland*, *Hansa*, *Sachsen*, etc., were built; the second which is of equal length and in which the rings of the *ZR-III* were mounted; and finally the third, 200 meters in length, which was constructed during the war and in which the *ZR-III* has been up to the time of its departure.

Whether these German hangars (the only modern ones there are) and with them the most important part of the Friedrichshafen factory are to be destroyed depends on France and probably also on whether other Governments are interested in Friedrichshafen going on with its Zeppelin work. It is also advisable, even here, not to build any illusions or sentimental air castles. We know how far we can count on a change of feeling in France which is prepared to forestall any sentimental policy on the part of Germany, by noting that the Eiffel Tower issued no more meteorological reports from the Atlantic Ocean for a week previous to the *ZR-III*'s flight, desiring thus to "sabotage" the transoceanic flight of the ship. Perhaps England is also interested in not seeing a former German monopoly pass over into American hands—an idea which is given weight by the fact that during the visit of Burney (a member of the English House of Commons), he emphasized England's intention of starting an overland connection with India with Zeppelin ships. It is therefore possible that England will advocate the retention of the Friedrichshafen factory. But no one can say to-day whether this will be successful. If there is a rumor from America going about to the effect that the United States will prevent a destruction of the airship hangar, this is of absolutely no importance, as it originated with a member of the German Embassy in Washington. It only gives expression to the hope and wishes that all of us Germans have to-day. It would be quite different if a representative of the American Government had made this statement. But that is not the case.

Should it come to the destruction of the airship hangar (five years and a half after the Versailles decree) this would be a last act of revenge on the part of France taking itself out of one of humanity's valuable cultural possessions, but which we can not prevent as it has formal right on its side. It would have about the same significance as though France 100 years ago after a victorious war against England had destroyed the first English railroads and had converted the rolling stock and workshops into scrap iron. Would this have prevented the further development of railroads? Most certainly not. It might perhaps have retarded it. But Stephenson would most certainly have gone to America with his engineers (or perhaps to Germany) there to go on with his work. It is the same thing to-day with the Zeppelins.

A large number of the engineers will remain in America at least for the present. Everything else depends on France's attitude.

If France actually destroys the sheds in order to prevent England obtaining the airships from Friedrichshafen for the India venture, then we are powerless. But we can take care to see that this revengeful act on the part of France—inspired by her anxiety—this ridiculous destruction of a cultural element that belongs in a way to all peoples actually takes place before the eyes of all the people in the world. In this case it should be the duty of all German moving-picture companies to make actual propaganda of this brutal act of destruction by showing to all nations pictorial evidence of France's revengeful spirit.

France can destroy the shed, but Count Zeppelin's work is beyond France's attacks. In Friedrichshafen it will not be struck at its only root. To-day, after the successful flight of the *ZR-III*, it is only a question of time when the Zeppelin lines (now planned) from London over Spain to South America and from London to India will be built. The large tracts of land in Asia will then be the net object which the Zeppelins will help to conquer.

If it is impossible to carry on the Friedrichshafen factory, then new Zeppelin factories will be started in English and Spanish territory by German engineers with characteristic German tenacity of purpose. We must learn to think more broadly along these lines instead of spending our strength in hopeless complaints and groans toward deaf ears. In Lakehurst the *ZR-III* will be inflated with noninflammable helium instead of its oxygen gas. America is the only country possessing helium. If France desires to protect itself, then it only needs to do one thing, and that is to insure that all airships built in Friedrichshafen be filled only with inflammable hydrogen so that in case of a war they would have no protection against an airplane. Where should Germany obtain helium gas?

If France will not consider this but insists on the destruction of the Friedrichshafen shed, then it will go through the same experience with the Zeppelin Co. as our former enemies have had with other displaced German energies. Just as thousands of German engineers and expert workmen have helped to build up new industries in overseas countries (South America, China, India, etc.), whose products will again take the breath of the Versailles dictators economically, France will probably very soon encounter German Zeppelins and their factories in foreign ownership in places where they are more undesirable than the place from which a revengeful act now threatens to drive them away.

GREAT BRITAIN

TORPEDO CONTROL AND ARMAMENT

February, 1925

Effingham-Frobisher class cruisers

The *Effingham*, *Frobisher*, *Hawkins*, and *Vindictive* are fitted with four above water and two submerged 21-inch torpedo tubes. The above-water tubes are single, top loading, mounted in pairs, athwartships on upper deck below mainmast.

The submerged tubes are about abeam of conning tower and are of standard type fitted to *Hood* and *Courageous* class, but a set of Williams-Janney gears is provided:

- (a) In lieu of the electric motor for working the bar.
- (b) To work the side door and locking bolt.

Power is supplied by a type K5, "A" end, working horsepower 16, driven by shunt motor. The bar is worked by a similar "B" end, coupled to the worm gear and pinion in the usual manner. The side door is worked by a type K21 $\frac{1}{2}$ "B" end, working horsepower 10, driving the operating gear through a worm and wheel. The operating bar is unaltered and can be worked by hand as usual. The tilting box of the "A" end is controlled by a spring governor so that the oil pressure regulates the speed of the "B" end. The governor is set to give full stroke when the oil pressure is 200 pounds per square inch: no stroke at 1,200 pounds per square inch. The object of this arrangement is to enable two "B" ends to be driven independently off the same "A" end, when necessary. It has the incidental advantage that no damage is done if the operating lever is left over as the governor centers the tilting box. The bar operating valve is worked off the ordinary bar working gear, the door operating valve by a lever mounted on top of the tube. The side door is closed and locked, or vice versa, without stopping the motor: all that is necessary is to center the lever momentarily while changing over the clutch.

| | Seconds |
|---|------------------|
| Time to close long door..... | 9 $\frac{1}{2}$ |
| Time to lock long door..... | 6 |
| Total | 15 $\frac{1}{2}$ |
| Time to unlock long door..... | 6 |
| Time to open long door..... | 9 |
| Total | 15 |
| Current while opening and shutting..... | amperes 50 |
| Oil pressure per square inch..... | pounds 550 |
| Revolutions per minute, "B" end..... | 800 |

With a well-drilled crew and gear working freely, hand working is probably faster, but power will give a better lock for high impulse and will overcome friction.

The result of shop test was as follows:

Running bar in or out (13 feet 10 $\frac{1}{2}$ inches):

| | |
|---|--------------|
| Time..... | seconds 25 |
| Current | amperes 44 |
| Oil pressure, per square inch..... | pounds 300 |
| Revolutions per minute, "A" end..... | 650 |
| Revolutions per minute, "B" end..... | 530 |
| Oil pressure with "B" end stopped, per square inch..... | pounds 1,200 |

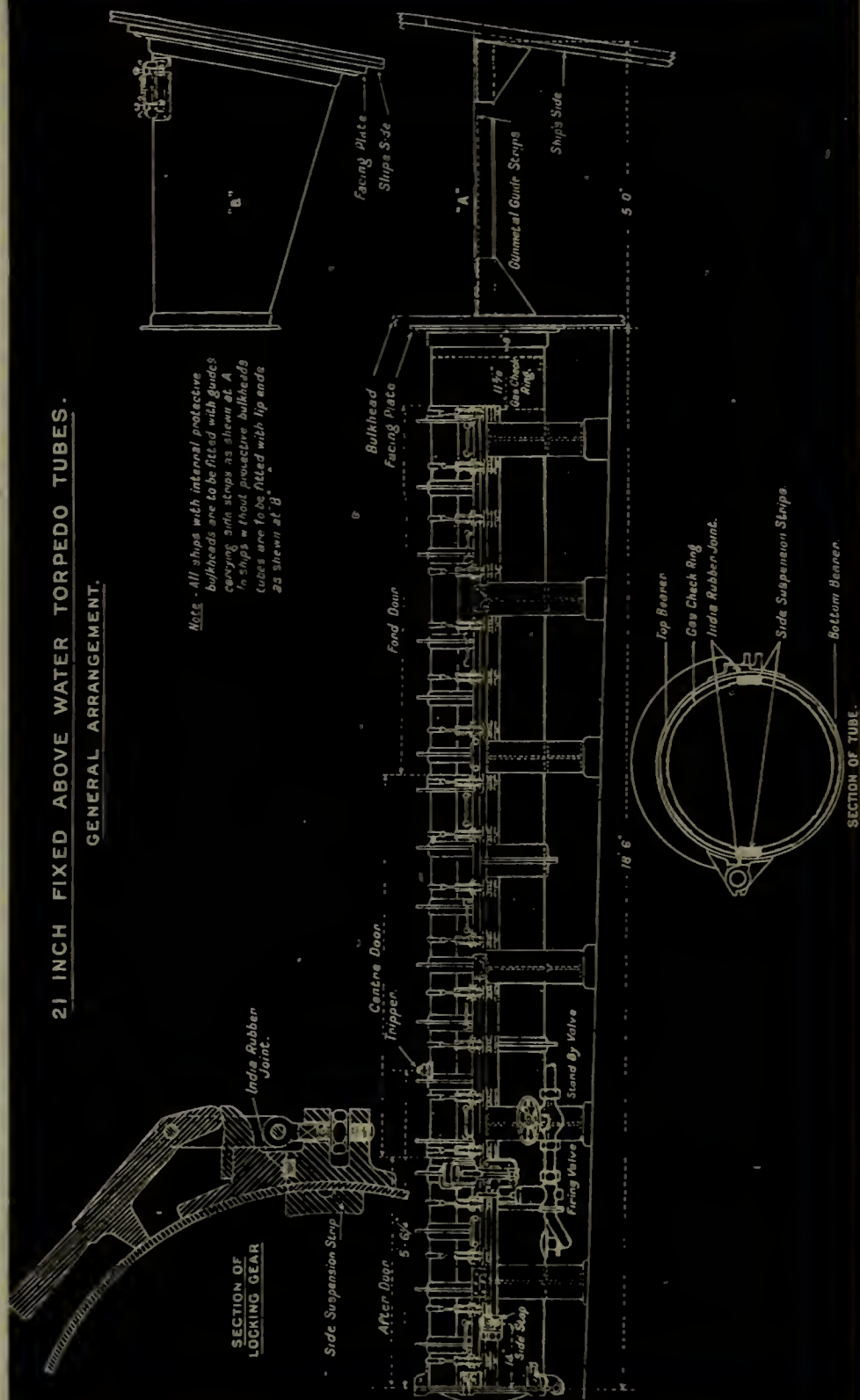
Bar loaded to represent pressure while steaming. A side pressure of 10 tons was applied to the bar at a point about 1 foot outside the flange of the tube. This fully represents the frictional load due to the ship's speed. It was not practicable in a shop test to apply the load in such a way as to represent the bending of the bar. This, however, is not serious when the bar is being worked; the bending takes place just before the release of the torpedo. The load was therefore considered to be a fair approximation to that obtained in practice. A side force of 10 tons corresponds to a speed of 34 knots. Under these conditions the pressure rose 20 per cent, the current $12\frac{1}{2}$ per cent. The time for a travel of 4 feet was 11 seconds, giving 38 seconds for the total travel, but as the maximum load was applied for the whole stroke, instead of increasing as the bar went out, this figure is on the high side. The reserve torque of the oil motor with 1,200 pounds per square inch is very great, and it may be found possible, by reducing this, to get the bar out more quickly. A different governor spring will be required. With the gear as it stands, the limitation on the speed of the "B" end is the size of the ports in the control valve. If these are made larger, the valve becomes difficult to work.

Lifting and traversing gear.—The tramway runs from the stowage racks to the loading position over the tube. Along this tramway (trolley track) works a traveler, similar to those used in shell rooms. The traveler carries with it two spring saddles, against which the torpedo can be hove up to steady it. The torpedo is suspended in a grab, which takes over the hook brackets, and is prevented from moving forward or aft by a tumbler. When hove up in the traveler, therefore, the torpedo is solidly held, and only requires steadying while being raised or lowered. This is superior to the American practice of a chain purchase with torpedo free to swing. The lifting and traversing gear is operated by pressure driven off the "A" end of the Williams-Janney gear, or alternately by hand winches, the lifting gear is worked by a single double-acting press, the traversing gear by two single-acting presses. The "A" ends for port and starboard are cross connected.

The above-water tubes were designed for fitting in ships where there is insufficient room in wake of the tube for rear loading. (See drawing.) The tube was built on the slack fit principle, but is fitted with three top doors, length of opening 16 feet, and a rear door hinged at the bottom. The center door closes over the other two and gives access to all adjustments. The doors are secured by tumblers, as shown in sketch. The gas check is fitted at the fore end of the tube, forward of the doors. The tipper is carried on the after door, and is fixed. A gap 2 inches wide is cut in the suspension strips to allow a strap to be used on the torpedo in loading:

2) INCH FIXED ABOVE WATER TORPEDO TUBES.

GENERAL ARRANGEMENT.



the side lugs will be forward of this gap when the torpedo is fully launched in tube. The tubes for the *Effingham* class are fitted with bell-mouthed lip end 5 feet long. (See "B" in sketch.) The opening in ship's side is closed by a flat plate on hinges operated by gearing from inside ship.

Impulse.—It was realized from the first that the long doors fitted in these tubes would cause leakage and render it difficult to get good results with powder impulse. It was also known that it was important that the angle of torpedo entry in water should not exceed 10° . Air impulse was accordingly adopted, and an air impulse of 1,200 pounds per square inch in a reservoir of $21\frac{1}{4}$ cubic feet gave a velocity of 51 feet per second with a very low pressure in the tube, with an angle of entry of 10° with a drop of 20 feet.

Loading arrangements.—A spare torpedo is stowed over each tube, and arrangements are made to provide for loading in action, using the crew of each group of four tubes. The torpedo is carried in a swiveling stowing and loading trolley carried on overhead rails. The torpedo is held in the trolley by brackets, as in an overhead stowage. The trolley is traversed along the rails by a hand winch. Leads from a hand winch are led to the loading and picking-up positions.

Care and maintenance routine for above-water tubes is as follows:

Daily.—Test firing gear and communications and work tripper and side stops and all moving parts.

Weekly.—Lubricate and work training gear over full arc of training.

Monthly.—Part and clean firing gear and breechblock. Coat spring and striker with axiom oil.

After action or practice.—Wash out tube with fresh water and oil over. Clean out cartridge pocket. Examine tripper and slide stops.

Quarterly.—Examine tripper and side stops. Coat tripper spring with a mixture of white lead and sperm oil. Take stand down of tripper with gauge provided in spare-part box.

Half-yearly examination.—Dismantle, examine, clean, and replace the following parts:

- (a) Tripper, tripper-raising gear, and side stops.
- (b) Firing gear.
- (c) Locking bolts and rear-door pins.

Launch fully charged torpedo through tube. Fire a dummy shot (torpedo with stop valve closed and positive buoyancy).

The torpedo-control system for the *Effingham* class has been described elsewhere. It is not believed, however, that there will be any more cruisers laid down with the arrangement of torpedo tubes as in this class, and it is understood that the arrangement adopted on the *Emerald* and *Enterprise* of four above-water triple tubes will be used in the new *County* class.

Destroyers and destroyer leaders

Supplementing reports on torpedo control submitted for H. M. S. *Hood* and the *Effingham-Frobisher* class cruisers, the following information is submitted on torpedo control installation for flotilla leaders and torpedo boat destroyers.

The torpedo control arrangements for these vessels are identical in principle and consist of a sighting position on either side of the bridge (which is quite roomy) alongside of which are fitted firing pushes and keys for operating the buzzers at the tubes. The order and deflection transmitters are situated on a panel in the center of the bridge between the two torpedo directors.

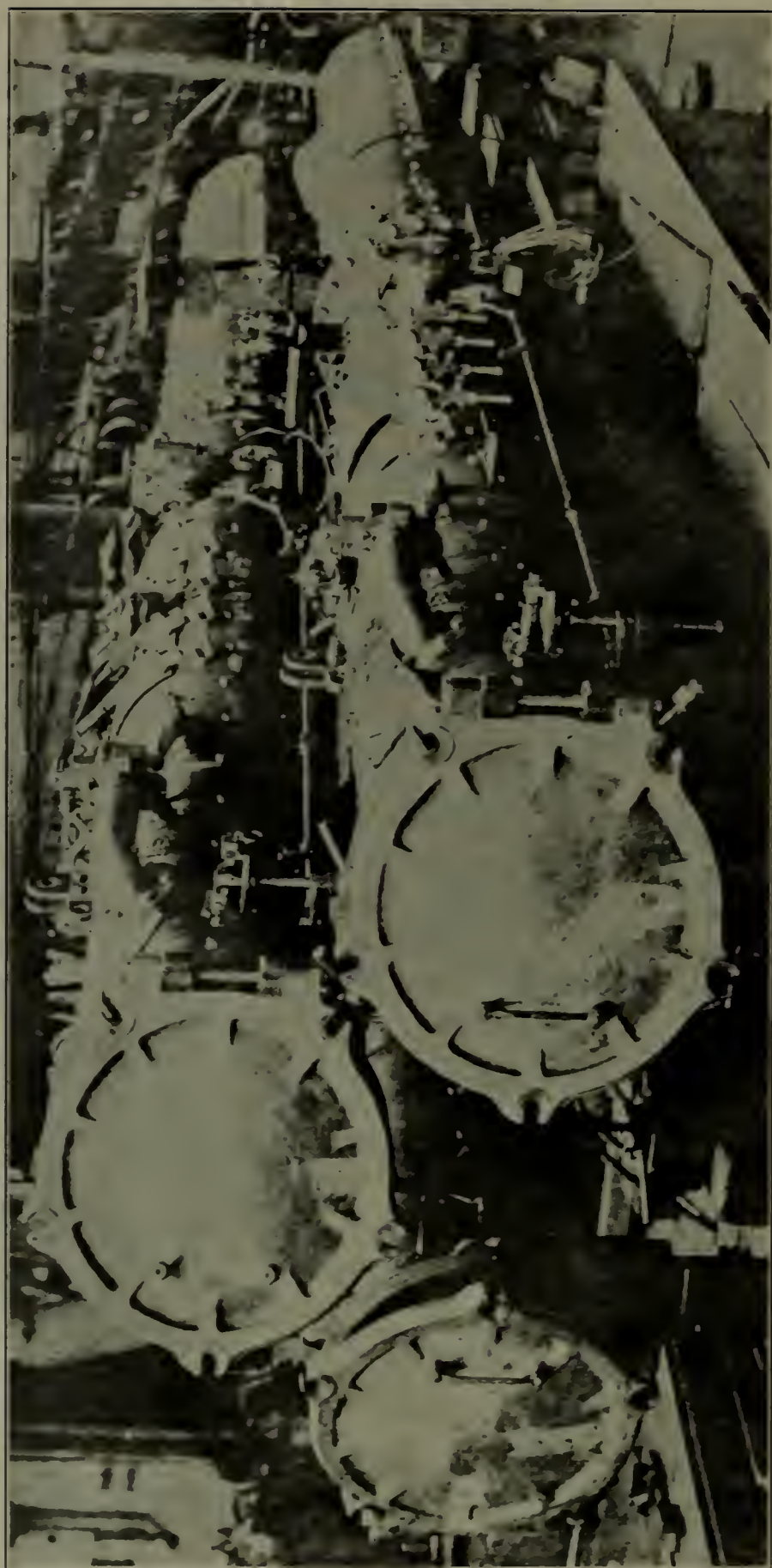
The standard equipment is two triple tubes mounted on the center line. Tubes are 21 inches and contain following features:

- (a) Slack fit construction.
- (b) Special doors giving access to all the principal adjustments and filling tubes.
- (c) Single ball-firing gear, Splenoid type, with local hand-releasing gear.
- (d) Latch-type self-lifting tripper, not affected by pressure in tube.
- (e) 17-ounce impulse charge.

The center tube is placed at a higher level than the other two. The layer sits on the right tube, the tube sight and instrument panel are in front of him, with the handles for local firing below. A locking bolt position with semipermanent stop is fitted at 90° red and green in order to guard against tubes being locked on wrong bearing, but tube can be fired with locking bolt up. The torpedo is supported on two side-bearing bars, and these with two top and bottom bars, guide the tail.

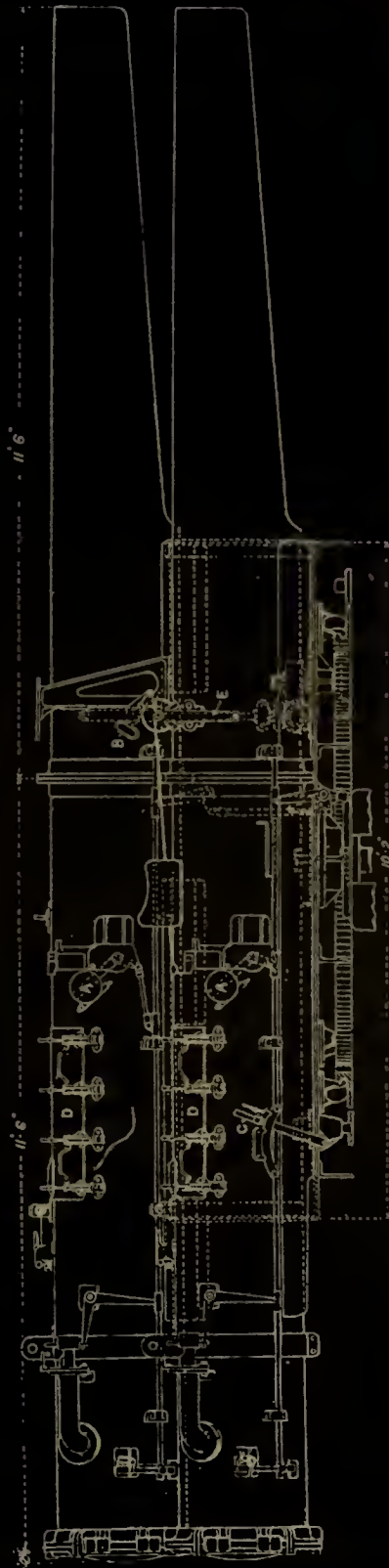
The access door covers that part of the tube extending over the engine room and balance chamber. Access holes are cut in the inner tube and these are sealed by India rubber pads on the inside of the access door. The door is attached to the tube by a hinge and secured closed by four hinged locking levers. The grip of these levers can be adjusted by means of nuts. When adjusted these nuts remain locked by metal lugs. Adjustment plugs are fitted for the water-bottle plug and for engine oil bottle and gyro adjustment plate of all torpedoes as these lie outside the access door.

The 17-ounce charge is used with maximum pressure limited to 65 pounds per square inch. Maximum velocity, 32 feet per second. The angle at which torpedo enters water when fired from horizontal tube is about 2°. The tripper is of the hinged type, balanced against pressure, and is fitted with an indicator to show its position. Training safety gear is fitted to prevent tubes being fired unless trained outboard.



21 INCH TRIPLE REVOLVING TORPEDO TUBES.

ELEVATION SHEWING SECTION THROUGH RACER.



SECTION SHOWING GAS-CHECK RING.



REFERENCE.

- A. Ball Drop.
- B. Hand Firing Gear
- C. Locking Bolt Lever
- D. Access Door
- E. Training Handles
- F. Training Safety Gear

PARTICULARS OF TUBES

| | Feet | Inches |
|------------------------------------|------|--------|
| Length, lip and cutaway part----- | 7 | 9 |
| Length, lip and circular part----- | 3 | 9 |
| | 11 | 6 |
| Length, rear portion----- | 11 | 6 |
| Length, total----- | 23 | 0 |
| Radius, lip from pivot----- | 12 | 11½ |

Weight of one set of tubes complete with racer and pivot, 6 tons, 11 cwt., 2 qrs., 18 lbs.

ROUTINE FOR CARE AND MAINTENANCE

Daily.—Test firing gear and communications; work and lubricate tripper and firing gear.

Weekly.—Lubricate and work training gear throughout full arc.

Monthly.—Disassemble and clean firing gear; treat rubber pads on door with graphite.

Quarterly.—Examine tripper and side stop.

Half yearly and on commissioning.—Examine tube throughout.

After practice firing.—Clean out tube; examine rubber pads and treat with graphite paste; examine tripper and side stop.

Endeavors, so far not entirely satisfactory, are being made to reduce the flash from above-water tubes. From trials it was found that the flash on discharge from an above-water tube at night was hardly visible at 500 yards and appeared as a small shower of sparks, but there were shore lights in the background and vessels in the vicinity. Further experiments showed that when the tube is pointing at the observer the flash appears as a dull glow and would probably be seen up to 1,000 yards, thus revealing the presence of a torpedo-boat destroyer when otherwise she might be undiscovered. Preliminary trials with "bobbinete" were not successful owing to the charge exploding too rapidly. A slower-burning charge was tried, but proved too irregular. Some trials seemed to show that the addition of 200 grms. of copper sulphate to the charge had solved the problem, but this finally proved of little use, and another scheme is now being tried. This consists in interposing four circular plates perforated in series between the impulse charge and the tube. These plates are slightly cupped, the two nearest the charge being cupped toward it and the other two cupped toward the tube. The plate nearest the charge has three hundred and fifty-nine 4-mm. holes; the next, seven hundred 3-mm.; the next, one thousand 2-mm.; and the last, one thousand four hundred 1½-mm. holes. This successfully prevented the flash, but the plates get burned and will not last more than six or seven shots; the tube pressure is also slightly reduced. Experiments are proceeding, but it is not seen that this question of flashless discharge is of really great importance at

ranges as low as 1,000 yards. It might be worth while, however, to investigate the use of United States Navy flashless powder charges for use as impulse charges on our own destroyers and light cruisers.

GREAT BRITAIN

VISIT TO ERITH PLANT OF VICKERS (LTD.)

January, 1925

A visit was made to the Erith plant of the Vickers Co., with reference to purported order of machine guns by the Japanese Government. This plant is located near the river Thames, about 15 miles east of the center of London. It covers a large area and has many up-to-date buildings that were erected during the war, most of which are now vacant. During the peak of production in the war there were some 20,000 employees at this plant. The superintendent informed me that their roll now numbered 2,300.

An inspection was made of their machine-gun works, which I was informed is the only plant now producing the standard type Vickers .303 caliber and the .50 caliber machine guns. Unless there is a unit of the plant which I did not see, there is no great production of machine guns at this time. Approximately 125 machine guns were observed in the assembling and testing room; about 100 of these were .303 caliber water-cooled guns, about 15 were .303 caliber air-cooled airplane guns, and about 10 were .50 caliber air-cooled airplane guns. The .50 caliber guns were all fitted with a muzzle flash device. From information gathered, all of these guns are a part of a contract for the Japanese Government, except a few .303 caliber guns of the British service which were in for repair. There were no water-cooled .50 caliber guns in this room, the only gun of the sort in the plant being one in the office of the foreman of the testing department, which was a company gun.

While this plant was very well manned and a majority of machines were running, yet a large proportion of these were engaged in the manufacture of twist steel drills. A proportion of the shop was also engaged in the production of breechblock mechanisms for large caliber naval guns and in making tractor parts. Practically all of the machine gun work observed in this shop was on .50 caliber guns of air-cooled airplane type, and, while it is difficult to make an estimate of the number of guns going through, I should say that not more than 40 guns were in production at this time.

A firing demonstration of the .50 caliber air-cooled gun was witnessed, and the functioning of the gun was perfect. This gun appears to be practically identical in action with the .303 caliber.

Three .50 caliber cartridges, two loaded and one dummy, of the type used in this test are being forwarded under separate cover. Kynock ammunition was used. The cartridge belt is the metal built-up variety, two complete links of which are also forwarded.

The only new feature of the .303 caliber gun which I noted was the device which permits the changing from belt feed to drum feed. This can be done very readily and allows one gun to be used either as a pilot's gun or an observer's gun, and also permits the use of the drum feed on the ordinary water-cooled ground gun. The drum used is the regular one originally manufactured for the Lewis gun. It is hoped to obtain later the complete detail of this construction and also of the .50 caliber gun.

Visits to other units of the plant were made but they were not of particular interest, and the only work in progress worthy of mention was in the foundry where castings were being made for a new Vickers farm tractor, which I was informed was intended for export to Australia, New Zealand, and South America. Evidently they are just starting production on this tractor as no quantity work was in evidence.

An experimental plant was in operation at Erith, but I was not permitted to inspect it.

Great reticence was exhibited on the part of the superintendent and by the Vickers central office representative who accompanied me, in all matters pertaining to Japanese and other foreign contracts. The superintendent told me that certain machine guns I saw and inquired about were for the Japanese, but no information was elicited as to the size of the present contract or what contract was in prospect. However, he did inform me that the various foreign governments usually got a small order at first and then followed with larger orders, and at a later time he said that they hoped to have more activity in the future.

From what I saw at these works, I am convinced that they have no large Japanese contract in work at this time. My surmise is that they have practically completed whatever contract they actually have, and that they are hoping for a large contract to follow. It may be that this contract was as much as 750 guns, which estimate I have previously reported, and in this case my belief is that at least 50 of the guns are of the .50 caliber air-cooled airplane type.

While I could get nothing definite on the subject, yet I was led to believe in the correctness of the inference that the Japanese Government had switched from their previous type of heavy machine gun to the Vickers standard type. If this is so, they will need a big supply of machine guns to equip their present army and for their reserve stocks, and they will either be manufactured in their own country or on contract with Vickers. It would appear that

Vickers entertain hopes of getting this business, but, of course, it is all conjecture as to what the real status is and what the outcome will be. An interesting side light in the premises may be obtained from a report which came from another big British firm that Japan had disposed of a proportion of her old stock of machine guns to one of the Chinese factions. This is rumor and I have no confirmation of it in any way.

GREAT BRITAIN

NAVAL NOTES

February, 1925

Projectiles—Dead-weight limits of shell (tolerances)

The following particulars regarding the dead-weight limits for British projectiles are furnished:

| Gun | Normal weight | Dead-weight limits | Gun | Normal weight | Dead-weight limits |
|----------------------|---------------|---|---------------------|---------------|--|
| | <i>Pounds</i> | | | <i>Pounds</i> | |
| 15-inch | 1,920 | 11. 1,922 lbs. 6 ozs. L. 1,918 lbs. 9 ozs. | 9.2-inch, light ... | 290 | 11. 290 lbs. 4 $\frac{1}{2}$ ozs. L. 289 lbs. 11 $\frac{1}{2}$ ozs. |
| 13.5-inch, heavy .. | 1,400 | 11. 1,401 lbs. 6 $\frac{1}{2}$ ozs. L. 1,398 lbs. 9 $\frac{1}{2}$ ozs. | 7.5-inch .. | 200 | 11. 200 lbs. 3 $\frac{3}{4}$ ozs. L. 199 lbs. 12 $\frac{3}{4}$ ozs. |
| 13.5-inch, light ... | 1,250 | 11. 1,251 lbs. 4 ozs. L. 1,248 lbs. 12 ozs. | 6-inch .. | 100 | 11. 100 lbs. 1 $\frac{1}{2}$ ozs. L. 99 lbs. 14 $\frac{1}{2}$ ozs. |
| 12-inch | 850 | 11. 850 lbs. 13 $\frac{1}{2}$ ozs. L. 849 lbs. 2 $\frac{1}{2}$ ozs. | 5.5-inch .. | 82 | 11. 82 lbs. 1 $\frac{1}{2}$ ozs. L. 81 lbs. 14 $\frac{1}{2}$ ozs. |
| 12-inch, light | 714 | 11. 714 lbs. 11 $\frac{1}{2}$ ozs. L. 713 lbs. 4 $\frac{1}{2}$ ozs. | 4.7-inch .. | 50 | 11. 50 lbs. 0 ozs. 13 drs. L. 49 lbs. 15 ozs. 3 drs. |
| 10-inch | 500 | 11. 500 lbs. 8 ozs. L. 499 lbs. 8 ozs. | 4-inch, heavy .. | 31 | 11. 31 lbs. 0 ozs. 8 drs. L. 30 lbs. 15 ozs. 8 drs. |
| 9.2-inch, heavy .. | 380 | 11. 380 lbs. 6 ozs. L. 379 lbs. 10 ozs. | 4-inch, light .. | 25 | 11. 25 lbs. 0 ozs. 6 $\frac{1}{2}$ drs. L. 24 lbs. 15 ozs. 9 $\frac{1}{2}$ drs. |

"Grebe" type airplanes—further information

In a previous report which appeared in the January issue of the BULLETIN it was stated that there had been two recent cases of structural failures to the Gloucester "Grebe" while in flight, and further stated that it was understood that all Grebes had been withdrawn from active service pending investigation. It is now learned that the Grebe was discovered to have three structural weaknesses, namely, upper longerons near tail, method of bracing horizontal tail surface, weak wing bracing. It is understood that the Grebes are being used in service again but their use is restricted to straight flying with no sharp turns, stunts, or dives.

It has also been learned that the Purnell "Plover" has been withdrawn from the service. Various rumors are current as to the reason for this action and there is first-hand information from one

air force pilot of the case of bad wing flutter. Only about 20 Plovers were in service and it is questionable as to whether these airplanes will be rebuilt.

Espionage

[Source reliable]

The Haslar espionage case, dealt with in the Daily Mail of January 9, 1925, presents a close parallel to the British practice during the Great War of employing Esthonian sailors for spy work in German naval ports. As they spoke German very well and were hostile to Russia, Germans trusted them and employed them on their ships and in harbors. Among other Russian refugees who during the war found their way into Holland, there were also Esthonians. The same as other Russians, they were taken care of by the Russian organization for assistance to Russian refugees from Germany. In the building occupied by this organization, one large room was occupied by a British secret service agent and a girl clerk. This agent had assistants who fished out for him Esthonian sailors who were used as already mentioned. Large sums of money were paid for this risky work, in one case 10,000 gulden was the sum mentioned for particularly valuable information.

The Irish spies who are "doing" Haslar seem to be working exactly on the same lines as the Esthonians in the hands of the British. They are in exactly the same situation vis-à-vis the British Government as the Esthonians were with regard to the old Russian Government. The power employing the Irish is undoubtedly a great power with an excellent secret service—most likely it is France.

[The following notes are from the British press:]

Naval policy—Three new cruisers—£10,000,000 navy program—Reversion to 1923 policy—Work for royal dockyards

It is understood that the Government intends to propose to Parliament in the forthcoming navy estimates the construction of three more light cruisers.

It may be recalled that Mr. Amery, as First Lord of the Admiralty, at the beginning of 1923, stated in the House of Commons when he was proposing to lay down five new light cruisers that the estimates were cut down to the bones, and that they would never be so thin again. At the end of that year the then First Lord prepared a program under which the number of new light cruisers was to be increased to eight in the estimates of March of last year. The Labor Government cut the number down to five, and the three which are proposed constitute merely a return to the policy of the Conservative Government in 1923.

Relieving unemployment

Admiralty officials, it is stated, are now engaged on the estimates in which the program will be laid before Parliament. The Government's policy will help to relieve unemployment in the dockyards.

In addition to the new cruisers, the Admiralty are contemplating new destroyers and submarines, the total cost of the new program being about £10,000,000. Only about £2,000,000, however, will be required in the coming financial year.

The Labor Government estimated for an expenditure of, in the past financial year, £5,000,000 on construction, reconstruction, and repairs of warships.

The five new cruisers of the 1924-25 program are named, as follows: *H. M. S. Kent*, builders, H. M. dockyard, Chatham; *H. M. S. Suffolk*, H. M. dockyard, Portsmouth; *H. M. S. Cornwall*, H. M. dockyard, Devonport; *H. M. S. Cumberland*, Messrs. Vickers, Barrow; *H. M. S. Berwick*, Messrs. Fairfields, Govan, Glasgow.

Distribution of building

Assuming that the above forecast is correct, and there appears to be no reason to believe otherwise, it is not unlikely that two of the three new cruisers will be laid down at Devonport and Portsmouth, and the other probably at Chatham, although there will no doubt be a demand from the northern yards for one of the new keels. It is, however, the practice to build destroyers and submarines by contract, so that the private yards should have a very reasonable share of the new construction if all the cruisers are built in the Government dockyards.

With respect to Chatham, this yard may be entrusted with the building of another large submarine on the lines of the experimental *X-1*, which has just been completed for commissioning at that yard. In that event the third cruiser would be built by contract.

Whilst British naval construction has been almost at a standstill since the Washington conference in 1921, other powers have built many cruisers and submarines—to which the treaty imposes no limit—and the beginning of this year finds the British Navy comparatively weak in these craft. There are about 50 cruisers in the fleet, but with the exception of the five laid down last year and a few others, most of these compare unfavorably with the new craft of foreign powers. They are small and slow, and generally not fitted for their rôle of commerce defense.

Three more cruisers

So far as can be gathered, the Government is pretty well agreed upon the proposal to add three cruisers to the five approved by the last Government. Eight ships are represented as the minimum factor of naval safety, and a good deal of anxiety has been felt rather than expressed in naval circles at the risk taken by the Labor administration in cutting down the number. The restoration to the limit will involve an addition of two millions to the estimates for the financial year, but it is believed that a good deal will be saved in the revival of employment in the shipbuilding industry.

It is in its supplementary requirements that the Admiralty is coming into contact with the Chancellor of the Exchequer. It is notorious that there is a demand from the service for more destroyers and submarines, and that the Treasury is faced with a bill of something like ten millions, which so far it has received with very little enthusiasm.

Submarines—L class

The new submarine *L-53* arrived at Portsmouth on January 14 from Chatham to join the second submarine flotilla, which is leaving for the Mediterranean at the end of the month.

The *L-53* is the third submarine of the L class to be completed during the present financial year, the *L-54* and *L-69* having already been commissioned for service with the second submarine flotilla. The *L-53* was laid down at the works of Messrs. Sir W. G. Armstrong, Whitworth & Co., at Newcastle-on-Tyne, in June, 1917, and after the war was transferred to Chatham dockyard for completion. She is 235 feet long, and has a breadth of 23 feet 6 inches, and a surface displacement of 960, which is increased to 1,150 when the vessel is submerged. On the surface her speed is 17½ knots, and she is capable of carrying 78 tons of oil fuel. Her armament includes two 4-inch guns.

The L boats which the *Lucia* is taking to the Mediterranean will be the first regular submarine flotilla to be attached to our fleet there. From pre-war days we have had submarines in the middle sea, but not previously to the current month a regularly organized flotilla of them with its own parent ship as a permanent part of the command. When the *Lucia* and her "brood" join it, the Mediterranean fleet will be as complete as a fleet well can be, as it will have its own aircraft and its own submarines as well as the various surface units. The aircraft carrier *Engle* has, however, been temporarily withdrawn from it and sent to Portsmouth for refitting, because the work was beyond the existing resources of Malta. Until the floating dock arrives at Malta, most of the big ships will have to come to home yards when they require an overhaul. And as there is no certainty when the dock will reach Malta, it looks as though Mediterranean ships will continue to furnish employment for the home dockyards for some time to come.

Mine layer—M-29

The mine layer *M-29*, a converted monitor, has left Pembroke on January 15 for Portsmouth for service with the torpedo establishment.

Aircraft carriers

The Admiralty have approved of the recommissioning of the aircraft carrier *Hermes*, at present attached to the Mediterranean Fleet, being deferred until after her refit, which is expected to be completed early in May. The *Hermes* is to proceed to Chatham after leaving dockyard hands, and will there pay off on arrival, recommissioning on the following day. The old crew of the *Hermes* is to be given foreign-service leave from the depot and will then be sent to Portsmouth to recommission the aircraft carrier *Furious*, which has been paid off into dockyard control at Devonport since June, 1922.

Changes in the East Indies squadron

It has been announced that in the near future the present East Indies Squadron, now consisting of H. M. S. *Chatham*, the first light cruiser at sea with the fleet, H. M. S. *Colombo*, and H. M. S. *Cairo*, will be replaced by the as yet incompleated cruisers *Effingham*, *Enterprise*, and *Emerald*. The *Chatham* was completed in 1912, displaces 5,400 tons, has a nominal speed of 25.5 tons and an armament of eight 6-inch guns. The *Cairo* and *Colombo* were completed in 1919, displace 4,190 tons, steam 29 knots, and carry five 6-inch guns. It is said that the new cruisers can not be considered postwar cruisers in the sense that they embody all the lessons learned in the World War. Construction on the *Effingham* was actually begun in April,

1917, and on the *Enterprise* and *Emerald* in June and September, 1918, respectively. It is expected that the *Effingham* will be ready for service by May, 1925. This cruiser is described as being one of the *Hawkins* or Admiral class, having a tonnage of 9,750 tons, an indicated horsepower of 70,000, a speed of 30 knots, and an armament of 7.5-inch guns. The *Enterprise* and *Emerald* displace 7,550 tons, carry seven 6-inch guns, and can steam 33 knots. The following interesting comments of the *Englishman* (Conservative, daily) on the area controlled by this squadron and the shifting of its base from Bombay to Trincomalee in Ceylon appear in a leading article, published on January 20, 1925:

The comparison in hitting power and speed between the present and future squadron is thus very marked. It bears a clear relationship to the Conservative Government's decision to proceed with the Singapore base, and to the recent shifting of the East Indies squadron base from Bombay to Trincomalee in Ceylon. Based on the latter port, the squadron is far better situated to protect the trade routes between Europe and the Far East than if it remained at Bombay. It is not usually realized how extensive Admiral Richmond's beat is. Besides, of course, covering all Indian waters, and in the east just missing Singapore and Penang, the squadron's area extends in the south to a point between midway between South Africa and South Australia, but slightly north of both territories. It avoids Madagascar; covers all East Africa except Portuguese, Somaliland, stops at the entrance to the Red Sea, but includes the Persian Gulf. It is, in short, an extensive area for three cruisers to patrol, while both the volume and the value of the trade passing through must be enormous.

Floating dock for Malta

"The Admiralty has decided to send the ex-German floating dock which has been berthed in the Medway since being delivered under the peace treaty to Malta for service in docking the capital ships of the Mediterranean Fleet.

"An inspector of shipwrights, inspector of engine fitters, and an electrical station supervisor are to be appointed to Malta for service on the dock."

This will do any ship of the navy (drawing under 35 feet). There are three such German docks in England taken from Hamburg and Wilhelmshafen.

Present information is to the effect that this dock may go to Singapore in the future.

Service in submarines

There is quoted below an editorial published by the engine-room artificer branch on the question of voluntary service in submarines. It will be noted that the expressions of criticism regarding the inexperience of submarine officers, especially the submarine engineer

officers, is very frank, and indicates the lack of properly trained chief engineers for British submarines.

"Is it the beginning of the end? This question has reference to the submarine service, or, in the new phraseology—A. F. O. 3095/24—'service in submarines.' This change appears to be a bit pedantic, in fact, unnecessary, but there is subtlety in the change.

"Shrewd observers who know the service in and out are of the opinion that the A. F. O. quoted is the beginning of a movement to wipe out the present distinctive attributes which have hereto characterized this arm of the navy as being one which called for exceptional physical fitness and mental alertness, to say nothing of the sporty side of those who volunteered for this highly dangerous duty. If this be true 'Ichabod' may be written over the gateway which admits to the submarine depot at Fort Blockhouse.

"The new order states: 'Their lordships have decided that the development of the submarine has now reached such a stage that it is no longer practicable to adhere to the system of restricting service in them to volunteers, although volunteers will be called for as hitherto and be given preference in selection. Officers shall be appointed and ratings drafted for service in submarines as requirements may demand.' There is nothing equivocal about the import of this order: bluntly, it means that the moment volunteers fail to present themselves compulsion begins.

"Four years ago two things happened which have an important bearing on this matter: new entrants to the navy had to sign an agreement to serve in submarines if required, whilst those then so serving were asked to sign on for further submarine service after their normal voluntary period had been reached. Nearly all these respectfully declined to sign any such agreement.

"There must be some deep-seated, though not immediately apparent, reasons for such a refusal. 'Cold feet' must be ruled out as an insult to the gallantry and courage of a body of men who suffered indescribable discomfort during the Great War and who were the heroes of many immortal exploits.

"Is it possible that some of the units of the submarine service have less faith in their officers than has been their wont? Much, which is vital, depends on the answer to this question.

"Two quite recent court-martials held on officers serving in the submarine service lend some color to this question. Both officers were reprimanded for neglect of duty, and as this neglect might have led to two serious disasters, involving an appalling loss of valuable lives, it could scarcely be wondered at if the crews of submarine vessels were to develop 'cold feet' when some of those on whose shoulders supreme responsibility rest are proved to be incapable of properly navigating the vessels under their charge. The reports of the two court-martials in question were not pleasant reading and many, other than submarine ratings, must have received a 'shock' when they realized that either unreadable charts or gross miscalculation were to blame for what might have proved two more submarine disasters. It is possible that these regrettable incidents but threw a light on what is general decadence in the professional ability of young officers who have so much responsibility thrust upon them; the average is not nearly good enough for such duties; the pick of their profession is what is needed for such onerous work.

"The herded, crowded, and free and easy life inevitable on board a submarine vessel has its advantages and its drawbacks. Among the latter is the fact that the meanest intelligence in the crew quickly discovers both the strength and the weakness of those who are responsible for their lives. Once

confidence in the officers is lost all is hopeless. This obtains in a lesser degree in all departments of ordered life where risks have to be taken, but in the submarine service risk is never absent for a moment, and therefore all is abnormal. Human nature can not be changed by the issuing of an A. F. O., but the governing authority can insure that only the highest professional ability, coupled with the greatest probity of character, is selected for the grave responsibility of command of submarines. Thus would one element which may be making for a compulsory service be eliminated; but once allow the crews of this service to become 'rattled,' and disaster will follow.

"The foregoing remarks are of general application, but a few criticisms are necessary, having a special connection with the engineering personnel of the system under review for, we are informed, it is the units of this particular wing which decline to volunteer for submarine duty. There is some mystery about this disquieting symptom which requires probing. Face value is not always an indication that all is satisfactory with many details which are partially hidden even to those who should know the most about such things.

"It is not intended here to stress the financial side of the submarine service beyond making one or two general remarks. When the rise in pay consequent of the Jerram award took place no increase in submarine pay was made. Before the Jerram increase to substantive pay took place the submarine pay, which was 3/— per diem, was in the region of 50 per cent of a second-class E. R. A.'s substantive pay. Since the year 1919 this has been reduced to 2/6 (basic rate). When an E. R. A. or chief E. R. A. is one of the crew of a boat he receives 1/3 per day additional, and another 1/3 per diem is paid should the boat be at sea or on detached service, but not necessarily at sea. In other words, these two additional payments may be considered as 'hard lying' money. It is, however, the basic rate which is of importance from a recruiting point of view, for all kinds of work on a submarine, whether in port or at sea, are of such a nature that all the amenities of civil life are by force of circumstances nonexistent. Clearly, it was a grave mistake to reduce the basic rate from 3/— to 2/6 per diem.

"Should an E. R. A. have done much service in submarines his chances of promotion are lessened as a consequence, for the papers set both for the C. E. R. A., warrant engineers, and mate (E) examinations make no allowance for the man who, for some years, has been divorced from steam and turbine methods of propulsion. In short, the difference between submarine duties on the professional side and those of a battleship or cruiser is quite as marked as that between those on a locomotive and in an airplane.

"Another point which tends to create much soreness is that of warrant engineers with, say, only the intensive training of one month in submarine work, being placed in charge of a staff of chief and E. R. A.'s who may have been years in the service of submarines. No engineer officer, no matter how smart and efficient he may be, unless he has had previous submarine experience, can undertake, so as to inspire confidence, the giving of orders and the superintending of numberless special points entailed in this class of duty.

"A vicious custom has grown up in recent years, that of too much fussy and usually ignorant interference on the part of nonengineering officers meddling with what is purely professional work; this goes to the extent of interfering and the cutting out of defects which the professional official thinks ought to be made good. Nothing hurts a trained mechanic more than this. It touches him on a raw spot, so to speak, and, though he may lack the strength of character to lodge his protest in the right quarter, the smart received still tingles. He talks, and so general discontent breeds and spreads.

"During the Great War, when every boat the Nation possessed was at work all the time, the strain was intensive, as no heed could be paid to the number of hours worked or to regular watches being kept, for each unit was out to do his bit in the most efficient manner, but now that the war has been over for years war conditions still obtain in many instances where work has to be carried out. Is there any real necessity for such a 'flap,' beyond that felt by some young officer desiring to reap the kudos of always showing his boat to be in an efficient state? Chief and E. R. A.'s can not be fooled in this way, nor should any attempt to fool them ever be made. We have enumerated a few of the many irritating pin pricks which are being conducive to the lack of volunteers for service in submarines. The situation is dangerous. It is not necessary to repeat the old tag about the value of one volunteer being worth 10 pressed men to show the direful straits to which the service in question is heading. Once such a service is made compulsory its utility will be considerably impaired.

"If life in a submarine was akin to a 'joy ride' compelled service therein would be bereft of harm. But that is not so. It is not only the most dangerous to human life, but the most irksome and disagreeable conceivable. It should be staffed with the very best brains and skill that is inclosed within the naval circle, and this can never obtain if drafting is to be made general, i. e., compulsory.

"No power on earth can compel a man to be a diver: those who volunteer for this highly dangerous work have no masters, yet the work is done efficiently. There are some duties in life that can only be carried out on a voluntary basis: service in submarines is, preeminently, one of such. 'Ichabod' is not exactly a welcome motto to stick anywhere, and certainly it should never appear over an entrance to which only the fittest should be beckoned and whose password is—'I am a volunteer.'"

Battleship gun fire—Mediterranean Fleet

"This week the battleships *Malaya*, *Valiant*, and *Iron Duke* engaged in the annual firing competition for the commander in chief's cup. Yesterday it was the *Iron Duke's* turn. She proceeded to a point 30,000 yards off Malta. Twelve thousand yards farther off was a vessel towing the target for the smaller guns, while 8,000 further still was the big guns' target. On the other side between the *Iron Duke* and the coast three destroyers represented battleships as targets for the *Iron Duke's* torpedoes, while another destroyer at top speed towed a box kite target for the antiaircraft guns.

"For three minutes all the guns and torpedoes were firing at all four targets, each of which made two turns from the firing vessel at intervals unknown. Yesterday the *Iron Duke* did excellently well. Her second salvo with the big guns hit the target and all the others straddled it. Until the scores are tabulated and compared the results of the competition will not be known.

"The *Benbow* is now leaving harbor for Villefranche, where the Duke of Connaught is staying."

ITALY

VISITS TO AIRCRAFT FACTORIES AND STATIONS

January, 1925

Experimental seaplane station at Vigna di Valle

This is a small experimental station on the Lake of Bracciano, a fresh-water lake. The hangar facilities consist of one large (double) seaplane hangar and an old blimp hangar, which is now being fitted for housing large seaplanes, such as the "*Savoia-Marchetti 55* (*S-55*).\" A runway, fitted with metal rails and a heavy handling truck, is now being constructed from the blimp hangar to the lake, preliminary to the arrival of the *S-55*.

The only interesting experimental work in progress at the time of this visit were the flight trials of the experimental observation seaplane *S-57* and the pursuit seaplane *S-58*. As far as can be ascertained, the following are the characteristics of these seaplanes:

| | S-57 (flying boat) | S-58 (flying boat) |
|-------------------------|----------------------------------|------------------------|
| Ceiling, absolute | 16,400 feet | 34,500 feet. |
| Ceiling, service | 14,750 feet | Not known. |
| Duration | 5 hours 30 minutes | 3 hours 30 minutes. |
| Radius of action | 365 miles | 178 miles. |
| Speed, maximum | 132 miles per hour | 142 miles per hour. |
| Power plant | 1. F. V. -6-250 horsepower | 11. S. 300 horsepower. |
| Armament | 1 Fiat free gun | 3 Fiat fixed guns. |
| Equipment | Photo camera and radio | Radio set. |

Another semiexperimental sea plane was the *S-16 Ter.*, which is a modified *S-16 Bis*. The *S-16 Ter.* is a flying boat bombardment sea plane equipped with a Lorraine 400 horsepower engine, whereas the *S-16 Bis.* is equipped with a Fiat 300 horsepower engine. One peculiar feature of the *S-16* type is that they have only one aileron, which is placed on the lower wing. Upon inquiry I was told that the machine appeared to have better lateral control with the aileron on the lower wing than on the top wing. I was informed that seas did not damage them. I must conclude that they have not attempted to operate in really rough seas.

Reports indicate that Italian bombardment sea planes carry 1,500 to 2,000 pound bombs to 14,000 feet. Every endeavor will be made to get a check on these claims. Tentative arrangements have been made to observe some of the trials of the *S-55* when it arrives at Vigna di Valle about the last of January, 1925.

In addition to sea plane experimental work a considerable amount of gunnery training for observers is carried out at Vigna di Valle. For this purpose various types of flying boats are provided. Most of the gunnery is carried out in *M-18* flying boats.

The Cantieri Montorpano factory—the Granili sea plane station

At Cantieri Montorpano 20 *CR-1* pursuit airplanes and 2 small sport model flying boats (*R-5* and *R-7*) are under construction. The characteristics of the *CR-1*'s are given in the book of characteristics forwarded with report, serial No. 110, Mon. No. 906-803, dated August 29, 1924. The *R-5* and *R-7* are types suitable for sport purposes only, and are of no military value.

Premier Mussolini recently stated in the House of Parliament to the effect that steps are being taken to encourage the development of the aircraft industry in Naples and southern Italy. However, as far as can be ascertained the aircraft mentioned above are the only ones now under construction or on order in the vicinity of Naples. It is understood that the "Officine Ferroviarie Meridionali" could build a large number of aircraft, but it appears that they have no orders at present.

The sea plane station at Granili, Naples, at present has eight Macchi *M-18* and four other flying boats. This sea plane station will be dismantled in the near future, and the site will be used for wharves for shipping. A board has been appointed to select a suitable site for a large sea plane station near Naples, but clear of the harbor. The selection of the site has not been finally made as yet, and it is not known when construction will begin at the new station.

Steps are being taken to develop the L. I. M. A. plant at Naples into an aircraft repair base. At present a small amount of aircraft repair work is being done there, and it is expected to gradually develop and expand the repair facilities.

ITALY

NAVAL NOTES

February, 1925

Savoia-Marchetti-55 sea plane

The official trials of the "Savoia-Marchetti-55," previously described, have been completed. During these trials the sea plane was powered with two 300-horsepower Fiat engines. The following information as to the results of the trials has been received from a thoroughly reliable official source:

Total weight, 5,626 kilograms=12,405 pounds.

Useful load, 1,580 kilograms=4,074 pounds.

Speed:

Maximum, 191.76 kilometers per hour =119.16 miles per hour.

Minimum, 100.525 kilometers per hour=62.5 miles per hour.

Climb :

To 1,000 meters (3,280 feet) = 10 minutes 10 seconds.

To 2,000 meters (6,560 feet) = 22 minutes 00 seconds.

To 3,000 meters (9,840 feet) = 43 minutes 00 seconds.

Estimated absolute ceiling with full load, 3,500 meters (11,480 feet).

The Italian Aeronautical Express Co. has ordered seven of this type of sea plane for use in the commercial air line between Italy, Greece, and Turkey. These sea planes will differ from those used in the trials mentioned above in that they will have two 400-horsepower Lorraine engines, and it is expected that the performance will be somewhat better than that shown.

Aircraft appropriations

It has been ascertained that the appropriation for aviation for the fiscal year 1924-25 has again been increased by Lire 50,000,000. This is in addition to Lire 84,000,000 carried over from last year's budget and authorized for use this year.

The total of funds thus far made available for this fiscal year is Lire 533,000,000. It is expected that additional appropriations will be made available before the end of the fiscal year.

Aircraft for Turkey

Information has been received from a reliable official source that 12 bombardment sea planes of the S-16 Bis. type are now being constructed in Italy by the Siai Co. for the Turkish Government.

I am informed from the same source that these are the only aircraft now on order in Italy for any foreign government, and that recent press reports to the contrary are unfounded.

From a visit to the Pattison shipyard on January 22, 1925, it was observed that the progress in the construction of the destroyers previously reported has been much slower than was expected. It was stated that considerable delay was caused by the decision of the ministry to install four large Lombardi torpedo tubes. This change necessitated changing the position of the after boilers in order to provide sufficient clear deck space for the two double tubes on the center line abaft the after funnel and forward of the after deck house.

The guns and torpedo tubes are not yet mounted in any of these destroyers, but it was ascertained that the armament will be: Four Lombardi torpedo tubes (in two double mounts on the C. L.). Three 4.7-inch guns (one forward and two in a double mount on the after deck house). Two automatic guns (about one-half pounders) for use against aircraft.

It is estimated that the launching dates of these destroyers will be about as follows: *Quintino Sella*, March, 1925; *Bettino Ricasoli*, May, 1925; *Francesco Crispi*, August, 1925; *Giorgio Nicotera*, November, 1925.

JAPAN

MOVEMENTS OF FLEET

February, 1925

The following information was obtained from the Japanese Navy Department on movements of fleet from January 29 to latter part of May:

| Dates | First Fleet | | | Second Fleet | | |
|---------|-----------------------------|--|-----------------------------|-----------------------------|--|-----------------------------|
| | First and Third Divisions | First Destroyer Squadron | First Submarine Squadron | Fourth and Fifth Divisions | Second Destroyer Squadron | Second Submarine Squadron |
| Jan. 29 | | | | Assemble at Mitajiri. | Same. | Same. |
| 30 | Assemble at Mitajiri. | Same. | Same. | | | |
| Feb. 1 | | | | | | Lv. Mitajiri. Ar. Yu-u. |
| 2 | | | Lv. Mitajiri. Ar. Fujii. | | | |
| 3 | | Lv. Mitajiri. | | | | |
| 4 | | Ar. Yu-u. | | | | |
| 7 | | | | | Lv. Mitajiri. | |
| 8 | | | Lv. Fujii. Ar. Kure. | | Ar. Yu-u. | Lv. Yu-u. Ar. Agenosho. |
| 13 | | | | | | Lv. Agenosho. Ar. Kure |
| 14 | Lv. Mitajiri. Ar. Kure. | | | Lv. Mitajiri. Ar. Beppu. | | |
| 15 | | | Lv. Kure. Ar. Fujii. | | | |
| 16 | | Lv. Yu-u. Ar. Kure. | | | Lv. Yu-u. Ar. Kure. | |
| 17 | | | | | | Lv. Kure. Ar. Yu-u. |
| 18 | Lv. Kure. Ar. Mitajiri. | | | Lv. Beppu. Ar. Mitajiri. | | |
| 19 | | Lv. Kure. Ar. Edauchi. Lv. Edauchi. Ar. Yu-u. | | | | |
| 20 | | | | | | |
| 21 | | | Lv. Fujii. Ar. Miyajima. | | | |
| 22 | | | Lv. Miyajima. Ar. Kure. | | Lv. Kure. Ar. Edauchi. Lv. Edauchi. Ar. Yu-u. | Lv. Yu-u. Ar. Beppu. |
| 24 | | | | | | |
| 27 | | | Lv. Kure. Ar. Fujii. | | | |
| 28 | | Lv. Yu-u. | | | | Lv. Beppu. Ar. Agenosho. |
| Mar. 2 | | Ar. Mitsugahama. | | | | |
| 3 | | Lv. Mitsugahama. Ar. Yu-u. | | | | |
| 4 | | | Lv. Fujii. Ar. Edauchi. | | Lv. Yu-u. Ar. Miyajima. | |
| 5 | | | Lv. Edauchi. Ar. Kure. | | | |
| 6 | Lv. Mitajiri. Ar. Beppu. | | | Lv. Mitajiri. Ar. Kure. | Lv. Miyajima. Ar. Kure. | Lv. Agenosho. Ar. Kure. |

| Dates | First Fleet | | | Second Fleet | | |
|---------|-------------------------------|---------------------------|-------------------------------|-------------------------------|---------------------------|--------------------------------|
| | First and Third Divisions | First Destroyer Squadron | First Submarine Squadron | Fourth and Fifth Divisions | Second Destroyer Squadron | Second Submarine Squadron |
| Mar. 9 | | | Lv. Kure Ar. Fujii. | | | |
| 10 | Lv. Beppu Ar. Mitajiri. | | | Lv. Kure Ar. Mitajiri. | | Lv. Kure Ar. Yu-u. |
| 11 | | Lv. Yu-u Ar. Miyajima. | | | Lv. Kure Ar. Ujina. | |
| 13 | | Lv. Miyajima Ar. Yu-u. | | | Lv. Ujina Ar. Yu-u. | |
| 14 | | | Lv. Fujii Ar. Mitsugahama. | | | |
| 16 | | | Lv. Mitsugahama Ar. Beppu. | | | |
| 17 | | | | | | Lv. Yu-u. Ar. Miyajima. |
| 18 | | Lv. Yu-u Ar. Kure. | | | | |
| 20 | | | | | Lv. Yu-u Ar. Tokuyama. | |
| 21 | | | | | | Lv. Miyajima. Ar. Tokuyama. |
| 22 | Lv. Mitajiri Ar. Tokuyama. | | Lv. Beppu Ar. Tokuyama. | | | |
| 23 | | | | Lv. Mitajiri Ar. Tokuyama. | | |
| 24 | Lv. Tokuyama. | Same | Same | | | |
| 25 | Ar. Sasebo | Same | Same | Lv. Tokuyama. (Cruising.) | Same | Same. |
| 30 | Lv. Sasebo | Same | Same | | Same. | Same. |
| Apr. 20 | | | | Ar. Sasebo | Same | Same. |
| 21 | Ar. Terashima Channel. | Same | Same | | | |

Until latter part of May, First and Second Fleets at home ports.

Movements of combined fleets

According to the Japanese press, the ships of the combined fleet will assemble in Mitajiri, and after being inspected by the commander in chief, Admiral Okada, will go out on February 5 to commence the first period of training for this year as follows:

First, Third, Fourth and Fifth Divisions will be at the drill grounds in Suwonada, off Mitajiri, from February 6 to 13, from February 19 to March 5, and from March 11 to March 21.

First Destroyer Squadron and First Submarine Squadron at the north drill grounds in Hiroshimawan from February 4 to March 21.

Second Destroyer Squadron and Second Submarine Squadron at the southern drill grounds in Hiroshimawan from February 4 to March 21.

The practices to be engaged in are principally gun firing and torpedo practice. On or about March 22 both fleets will take on supplies of fuel and water at Tokuyama, the First Fleet will cruise along the Northern China coast while the Second Fleet will make a similar cruise along the south coast of China returning to Sasebo by the middle of April.

JAPAN

NAVAL NOTES

(From Japanese press)

January, 1925

Minor naval maneuvers for 1925

Minor naval maneuvers in 1925 will be held from the early part to the middle part of October. The opposing forces will be the combined fleet on one side and the ships attached to Kure on the other. The assumption is that the combined fleet assembled at some point off Kinkazan (northeast coast of Honshu) is preparing to attack Kure naval port from the south. The engagement is supposed to take place off the south coast of Chikoku.

Status of destroyers

The following information was furnished by the Japanese Navy Department, in reply to an inquiry regarding the status of certain destroyers:

The following destroyers were placed out of commission: April 1, 1924, *Arare*, *Shirayuki*, *Nowake*, *Matsukaze*; December 1, 1924, *Yunagi*, *Ariake*, *Fubuki*, *Shigure*.

The following errors were made in the list furnished by the Japanese Navy Department which appeared in February BULLETIN: Under Yokosuka Naval Station, Second Mine Sweeper Division, *Yudachi* should be substituted for *Ariake*; *Yugure* should be substituted for *Fubuki*. Under Yokosuka Naval Station, mine sweepers not attached to any division. This should be changed to read: Training destroyers not attached to any division. *Urakaze*, *Shirat-suyu*, *Mikazuki*.

Ships placed in special reserve status, Japanese Navy

The following information was supplied by the Japanese Navy Department in reply to an inquiry regarding the placing of vessels in a special reserve status:

(a) Ships to be placed in special reserve status: Yokosuka, *Chikuma*, *Chihaya*; Kure, *Akashi*, *Chitose*, *Adzuma*, *Yodo* (from April); Sasebo, *Mogami*.

Complements attached to the above ships will be from 10 per cent to 20 per cent of their regular complements.

(b) Submarines to be placed in the special reserve status: Yokosuka, *HA-1*, *HA-2*, *HA-9*, *HA-10*; Kure, *HA-3*, *HA-4*, *HA-5*, *HA-6*, *HA-7*, *HA-8*, *RO-52*; Sasebo, *RO-1*, *RO-2*, *RO-25*.

No complements will be on board above submarines, but the local defense corps will be responsible for their upkeep.

"Akagi" to be launched in April, 1925

Work on the *Akagi* is about 80 per cent completed and she will be launched on April 25, 1925. As it will take over a year to equip her, she will not be entirely completed until early in 1927.

"Tosa" to be sunk end of January, 1925

In a statement made by the Japanese Navy Department to the press, the *Tosa* will be sunk at the end of January, 1925. Work on the dismantling of her has been going on at the Kure Navy Yard, and everything possible has been removed. The intention is to fill her hull with sand and gravel, tow her out to deep water near the entrance to Kure, open her sea cocks, and send her to the bottom.

Sea-plane corps at Kasumigaura to be increased

An increase in the sea-plane corps at Kasumigaura has long been sought, but was held up on account of shortage of funds, and it was recently decided to carry it out.

A tract about 10,000 tsubo (one tsubo is 6 feet square) will be reclaimed along the lake and various equipment will be installed. The number of training students of this corps will be increased to provide the necessary number of pilots.

Orders have been placed with the Nakajima Airplane Works for 50 Avro training machines and they are to be shipped to Kasumigaura by May 1.

Rohrbach metal plane

According to the Japanese press, the metal Rohrbach plane, which was manufactured in Denmark and recently arrived at Yokosuka, has been assembled, and a trial flight will take place shortly.

It has been decided to manufacture this type of plane in Japan under the direction of Lieutenant Commander Wada at the Nagaura ordnance shop which is attached to the Yokosuka Naval Station.

Monkey dropped from air found alive

The first experiment in the world which consisted in dropping from an airship a small monkey put in a model airplane for the purpose of obtaining materials for studying air physiology was made by the Kasumigaura naval air force on the 16th at 9 a. m. A model 1921 fighter of 5.7 shaku (1 shaku is equal to 0.994 foot) in span, calculated from the weight of the animal which was 530

mommo (100 mommo is equal to 0.827 pound), was fastened at the extreme rear of the gondola of No. 2 Astra airship piloted by Lieutenant Fujiyoshi, and was released and let down at a height of some 100 meters. The miniature airplane carrying the monkey passed from a nose dive into a spin and fell to the ground in 6 seconds, nosing deep into the earth. The left wing of the model plane was heavily broken, but the animal was found externally uninjured, except that it got a bleeding bruise at the side of its nose. It was dissected by Surgeon Commander Wakasuki in the afternoon to search for any internal wound, but nothing but the aforesaid slight external injury was found. The fact that the animal was alive after the fall struck all present with wonder, as it went quite contrary to their expectations.

LETTLAND

NAVAL NOTE

(From German marine press)

The navy department has ordered two mine sweepers and two submarines from French firms. The contracts, however, were only to be signed in October after the convening of Parliament. The firm "Ateliers et Chantiers de la Loire" are building the submarines, which will be finished in the spring of 1926. Special courses for training crews were opened in Paris on October 1 for Lettish officers.

RUSSIA

THE BALTIC FLEET

January, 1925

[Source reliable]

The following ships are reported by a confidential source as having taken part in the September maneuvers off the Latvian-Estonian coast (principally near Libau).

Dreadnaughts, *Marat* (*Petropavlovsk*), *Paris Comandore* (*Sevastopol*); cruisers, *Republica* (*Imp. Pavel I*), *Rurik*, *Aurora*, *Scotiana*; destroyers, *Trotsky* (*Lt. Ilyin*), *Stalin* (*Samson*), *Zinoviev* (*Azart*), *Karl Marx* (*Izyslav*), *Rugels* (*Desna*), *Uritsky* (*Zabinka*), *Voldarski* (*Pobeditel*); gunboats, *Krasnos Znamya* (*Khrabri*), *Krasnaya Zvezda* (*Khivintz*); torpedo boats, 8; submarines, 6; auxiliary craft, 11.

NOTES.—(a) The above battleships and cruisers, 8 destroyers (not named), 6 submarines (not named), and 22 torpedo boats and mine

sweepers (not named) are reported by another source as fit for action, but *Sretlana* is stated to have not yet made any trial trips since being put into commission. This ship has been steadily reported since 1923 as being under repairs and latterly (1924) as being near completion.

(b) *Rurik*.—Up to the middle of 1923 all reports agreed that this vessel was out of commission. Toward the end of 1923 reports started to come in to the effect that she was to be repaired. Later—early in 1924—it was reported that repairs were in hand. In July, 1924, she appears on the list of ships comprising the Baltic Fleet as “fit for service.” From then on except for one report (where she is shown as on “indefinite reserve”—there is evidently something wrong about this particular report as ships long ago sold to Germany are shown as on “indefinite reserve”) she appears as fit for service and taking part in manœuvres. She is now reported as sighted by the Esthonian observation station together with the *Aurora*, and by the Lettish station apparently alone at 11 a. m. on September 7, off Liban.

The Finnish observation station has so far not once reported the *Rurik*.

The *Aurora* (S. S. S. R.) is reported from Finland as “disappearing from view in a westerly direction” on the 6th and is not reported again until she is “disappearing in the east” on the 8th. This would allow for her being somewhere off the Esthonian coast (west) on the 7th.

The “parade” which, according to Soviet Russia newspapers, took place on October 7, after the manœuvres, is evidently indicated in the report from the Finnish observation station on that date. There is no mention in this report of any ship like the *Rurik*.

The only ship the *Rurik* could possibly be confused with is the *Komsomolete*, and experts say that this is practically impossible except for a landsman. But as the *Komsomolete* was reported by the Finnish posts as being in the Finnish Gulf at that time and the *Rurik* was reported by the Esthonians and Latvians this possibility seems to be ruled out.

CONDITION OF SHIPS TAKING PART IN MANEUVERS

Marat (*Petropavlovsk*). In good order.

Paris Commune (*Sevastopol*). Guns in part worn out; elevator to middle turret not in working order. Machinery does not give full speed. Only able to attain 19 to 20 knots.

Cruisers—

Respublica (*Imp. Pavel I*). In good order.

Rurik. In good order.

Aurora. Four 6-inch guns worn out and out of action. (NOTE.—Reported by another source as used as training ship.)

Svetlana. In good order. All 12 inch and 6 inch guns in good condition. Torpedo tubes in good condition. Speed showed 31.2 knots. Armor about 5 inches thick. (NOTE.—Seems to be an error for 3-inch.)

CONDITION OF SHIPS IN RESERVE

Amdrsi Perrozvarny. Damage received in 1919 repaired. Has at present only three 12-inch and six 6-inch guns.

Poltava and *Gangut*. Without means of movement as machinery is all dismantled and partly taken out. Guns left are of no value. Acting on a report from a special commission, the Revveensoviet in 1921 decided not to proceed with their refit, and all the guns, copper and nickel parts were removed for sale as scrap. Some of the guns including a few 12-inch were transferred to other ships, while others have been utilized for fortification ashore. The hulls of both ships are lying at Leningrad not having yet been sold. (*Gangut* reported by another source as down for repairs in 1925. This is conjectural, however.)

Lctun. Repairs started in May not yet finished.

Oifei. Repairs started in May will not be finished before spring 1925.

Nichail. Construction not finished. Should be finished at opening of navigation in 1925.

Novik. Down for complete repair in 1925.

Gen. Kondratiev. Disarmed, machinery taken out.

UNFINISHED

The cruisers *Admiral Butaker* and *Admiral Spiridor* are reported as being completed at Leningrad, and at present 60 per cent fit.

According to the 1924-25 naval construction program the *Butakdv* is to be launched in the spring of 1925, but at the present rate of construction she will not be ready before the autumn and then only provided that the necessary funds are forthcoming. Work is proceeding very slowly, with constant stoppages owing to delay in the receipt of funds and lack of materials and appliances.

By dint of special efforts, *Beeman*, the chief of the naval forces of the Republic supported by Galler, Chief of Staff, has succeeded in obtaining an urgent credit of 800,000 rubles, which has been earmarked for the *Butakdv*. Three hundred thousand rubles of this credit have already been paid over to the Chief Naval Technical Economic Directorate. (NOTE.—No information as to *Admiral Grieg*.)

RUSSIA

THE CASPIAN FLEET

January, 1925

[Source reliable]

The strength of the Caspian Fleet has been increased by eight tugboats from the harbors of Baku and Astrachan. Guns of 4.5 and 6 inch have been mounted on them. They are scheduled for ocean traffic and for war operations against mountainous fortifications on the coast. Torpedo boats, etc., are powerless against them, as it is necessary to fire with elevated angle, which they can not do. The tugs were made an integral part of the fleet after certain reports had been received regarding the Grusin uprising. Their activity must be described as extraordinarily successful. Ships of the same type were assigned to the cannon boats; they are registered under the names *Ali Beiramov* and *Rosa Luxembourg*. The fleet only left the harbor for maneuvers up until August. During the entire remaining period it was in the harbor due to the tense political situation. The distribution of the ships of the Caspian Fleet is as follows:

First division.—*Jacob Sverdlow*, former *Emir von Buchar*a; *Karl Liebknecht*, former *Fin*n; *Markin*, former *Ukraina*; *Alvater*, former *Turkmenez Strawropolski*.

Woisslowoi has left the active fleet.

Second division.—*Storoshewoi*, *Dosstoini*, *Dejatelni* (in need of repairs), *Rastoropni* (in need of repairs).

Torpedo boats.—*Porajajuschtschi*, *Protschni*, *Pritki*, *Retiwi*, *Rasjaschtschi* (unserviceable, no longer with the fleet).

The transport ship *Astrobat* was built in 1900, 326 tons, and served formerly as a messenger boat. On long trips the squadron made 12 knots, but only then when those boats were not present which had been remodeled from tugboats into cannon boats.

RUSSIA

NOTES

February, 1925

Maneuvers in the Gulf of Finland

A Red Fleet maneuver was held in the Gulf of Finland on October 3, 1924, off Kronstadt.

The attacking force defeated the naval force defending Kronstadt, debarked a landing force, and captured the Kronstadt fortress. The defending air force, both naval and land, was ruled out of action. During the maneuvers the officers in command were very much agitated over the continuous movements of the Finnish and Polish scouting ships which trailed the Russian ships. Due to this fact, conferences were held on the ships after returning to Kronstadt to discuss defense measures against the enemy during peace. The movements of the Finns and Poles made the crews gain the impression that they were preparing for war. This resulted in a certain nervousness among the sailors, together with suspicion against their superiors.

Torpedo practice

Commission attached to the naval staff of the Baltic to examine the preparedness for battle of the Baltic Fleet

No. 117,

August 4, 1924.

MESSENGER SHIP "KRETKHET."

To the chairman of the commission:

On August 2 I was present at a firing practice on the dreadnought *Paris Commune*, which consisted of two exercises. The first exercise consisted of firing at a fixed target 22.97 by 75.48 feet at a speed of 14 knots. No buoys had been placed, and the range had to be estimated by the ship's own resources. Firing opened when the target was abeam, and therefore took place at various distances (up to 6,000 meters).

Firing results.—Twelve-inch guns, 9 shots, 7 hits; 120-millimeter guns, 18 shots, 6 hits; 75-millimeter guns, 7 shots, 3 hits. Average percentage of hits, 50.

The second exercise consisted of firing at a towed target 29½ by 29 feet at a speed of, or calculated that the combined speed of ship and target did not exceed, 28 knots. The range was about 4,500 meters. The percentage of hits was as follows: Twelve-inch guns, 36.5 per cent; 120-millimeter guns, 30 per cent; 75-millimeter guns, 45.4 per cent. Average hits, 37.1 per cent.

(Sgd.)

KURKO V.

Artillery training in the Red Fleet

Artillery practice will be held during the entire winter according to the method of Admiral Makarow. Small targets will be fired at with 3-inch cannon. The latter is mounted in a 12-inch cannon. By special apparatus which has been attached the gun is served the same as the regular 12-inch gun. In this manner the large costly barrels are preserved and target practice on the whole much more economical. At the present time appropriations for the navy are being heavily cut.

The comparatively speedy ships of the *Novik* type have been fitted out with apparatus for producing smoke screens.

Improvements in the Soviet Fleet

A part of the Baltic Fleet is to receive new armament during the winter months. At present orders have been issued to replace the 12-inch cannon as they became unserviceable during the maneuvers last summer. A part of the 5-inch guns on the *S. S. & R.* will be replaced. On the same ship some of the machines and the torpedo apparatus will be renewed. A part of the torpedo boats will receive antiaircraft guns, 44-millimeter Vickers with visible trajectory. Improvements will also be made on the ships' bodies in order to increase their speed.

Notes on the replacements in the Red Fleet

The assignment to station of the new recruits in the navy was begun in October. The recruiting itself is not performed by the commission which is assigned this function by the Red Army but by sections of the Communist Society of Young Men (Komssomol). This is the second year that this Communist Society of Young Men has performed the function of enlisting recruits. The Russian sections of the Communist Society of Young Men furnish the replacement for the Baltic Fleet and a few others; the Ukrainian sections for the Black Sea Fleet; the Caucasian and Turkestan sections for the Caspian Sea. The united Communist Society of Young Men has functioned for the past two years as chief of the entire Russian Fleet. In the present annual quota there are more than 1,800 society members. It is believed that a total of 6,000 sailors have come from the ranks of the society. About 6,000 communists have been taken in as new members based on their service in a section of the fleet. It is believed that by 1926 all sailors will be communists. The total number of recruits enlisted in the fleet this year amounted to 7,000, a portion of which immediately signed up with the Communist Party after being assigned to a ship or a unit.

Baltic Fleet air units

The following distribution of Air Service hydroplane units attached to the Baltic Fleet is reported as of December 18, 1924:

First Independent Scouting Squadron, Oranienbaum, 3 flights, 38 machines.

First Independent Fighting Flight, Peterhof, 15 machines.

First Independent Scouting Flight, Archangel, 12 machines.

Second Independent Scouting Flight, Leningrad, 12 machines.

The First Marine Aviation base is at Leningrad.

Notes on Russian air fleet

During the past few months accidents have greatly increased. They very often led to the death of the aviators. Of 24 accidents during the third quarters, 3 were due to the fault of the aviators, 14 to defects on the airplanes, and 3 to climatic influences. The remaining four accidents occurred during long-distance flights and the causes are unknown. Serious accidents (29) as follows: Fault of the aviators, 7; defective airplane parts, 16; climatic influences, 6. Accidents of a lighter nature (41) mostly due to climatic influences.

A board was appointed in September consisting of Communist aviators and engineers under the chairmanship of Machtscherjakow. The findings of this board were to the effect that the majority of the accidents were due to the material not having been properly tested in the factories. Now all machines that leave the factory must be accompanied by papers which bear the signatures of all persons who worked on same. In this manner it is desired to determine the responsible party. Severe punishment will be administered to those who are found guilty of carelessness in the manufacture of airplanes. On the other hand the aviators were informed that they would be punished for every case of recklessness, even though an accident did not result therefrom. Furthermore the board discovered that the counter revolution also had a hand in these accidents. In order to prevent the impression of nonsuccess, from being spread about, obituary notices dare not be published.

Comments on the Bolshevistic-Japanese Treaty

[From the Russian and German press]

Li-Tja-Ao, the Chinese Ambassador in Moscow, informed a representative of the Moskauer Iswestija that the Bolshevistic-Japanese treaty which was signed on the anniversary of Lenin's death, was the best monument that could be erected to him. The Chinese diplomat declared further that Japan's recognition of Soviet Russia would mean that the former would pay greater attention to the voice of the Soviet Union which has always been opposed to any interference in Chinese internal affairs.

While the Bolshevistic press acclaims the treaty as a great success, the *Berlin Dni* (published by Russian emigrants) takes the opposite standpoint. The Berlin paper claims that this treaty shuts out Russia from the Far East as an independent military-political factor. The Bolsheviks who have lost the coasts of the Baltic and have delivered the Black Sea over to foreigners have now cut off the last exit to the Pacific Ocean. With no sacrifice of men or the firing of a single gun, Japan, by the clever exploiting of the weak of poor, has lamed Russia and has obtained from Herr Karachan in Peking (who has nothing whatsoever to do with Russia) that which they never even thought of attempting in Portsmouth. The words of the Russian philosopher Solowjew that former Russian territory would be delivered over to the yellow races have come true. Japan will now fling the racial question on the shores of the Pacific Ocean.

and the time is not far distant when the long-range guns of the Japanese will demolish the fragile buildings of the European peacemakers. The celebrated Geneva protocol has been given a dreadful blow by Japan.

The *Moskauer Isvestija* in a long editorial states that the treaty has been received with great rejoicing in Japan, where they feel that this begins a new era in the history of the Far East and also in the history of the entire world. The Moscow paper considers this feeling on the part of the Japanese people quite comprehensible, as the treaty was much more important to Japan than to the Soviet Union. Japan now has an absolutely sure and reliable rear defense, and can consider its western coast as thoroughly protected in the event of a war in the Pacific. The position of the Soviet Union in the Pacific has become even more secure as the result of the treaty. For this reason it is not to be wondered at that the capitalistic countries viewed such an agreement with great concern. Recently there have been rumors of a new international combination, i. e., between the Soviet Union, Germany, China, and Japan. There seems to be a certain tendency on the part of Germany lately to obtain or form a combination of this kind, but Bolshevistic opinion is rather doubtful of the advantages that would accrue to Germany. However, the aforementioned entente has little foundation in fact, but the mere fact that it is mentioned as a possibility shows to what extent the imperialistic nations fear the Far East. In any event, this anxiety on the part of the capitalistic nations indicates what a powerful historic rôle Soviet Russia will play in the Far East.

The *Moscow Pravda* calls the treaty a great political event of supreme importance and attains added importance from the fact of its signature just at this time. At the same time that the English Conservative Government is intriguing against Soviet Russia, the anglophile Japanese Ambassador, Baron Kato, signs a treaty with the Soviet Union. This shows that Japan is going to abandon its policy of isolation in the Far East and considers the Soviet Union strong enough to support it in its battle against the English-American plottings and schemings. The *Pravda* reminds its readers of the fact that the Japanese-Russian negotiations were very long drawn out, due wholly to the fault of the Japanese Government. The Soviet Government made concessions to the Japanese as Soviet diplomacy is entirely opposed to a stereotyped policy founded on prestige. The *Pravda* then speaks of the increasing acuteness of relations between Japan and the United States and claims that the American naval maneuvers in the Pacific are the best indication in the world that America is going ahead at full speed with its anti-Japanese preparations. Faced by the English-American machinations, there was nothing left for Japan to do but approach the Soviet Government, all the more so as France's financial dependence on America is increasing all the time and there can, therefore, be no question of Japan receiving assistance from France. The recognition of the Soviet Union by Japan is therefore of the greatest importance in the question of the Far East as this recognition signifies the rapprochement of Japan, China, and the Soviet Union.

Russian Intelligence Service

A printed circular of the Soviet Revolutionary War Council which serves for the instruction of intelligence officers contains the following paragraphs:

During the World War, the activities of the secret agents were directed by the Stawka (Czar's headquarters) and by the general staff. The foreign agents were under the staffs of the north, west, and southwest fronts as well as the staff of the Odessa Military District. The staffs of the north and west fronts were in charge of the agents in Denmark, Sweden, and Holland; the staffs

of the southwest front and the Odessa Military District were in charge of those in Rumania and Switzerland. The general staff had agents in Bern, Copenhagen, and Stockholm but the work of the latter was in no way systematic or organized.

Besides these agents, there was also an independent organization (Hector) operating in Germany. However, its existence and purpose were soon discovered by the German counterespionage service and the work had to stop. The staff of the north front was in charge of the activities in Norway and Sweden; the staff of the west front had the work in Germany; the staff of the southwest front that in Austria; and the staff of the Odessa Military District, that in Austria, Rumania, Bulgaria, and Turkey. The organization and development of the intelligence service left much to be desired. The principal defects were: (1) The lack of a connection between the intelligence and counterespionage services (Kontra-raswjedka); (2) the lack of a general plan and system of work for these two services which worked independently; (3) the lack of a solid connection between the individual intelligence units; each worked independently; (4) deficient training of the intelligence personnel.

The reason for these shortcomings lay principally in the insufficient development of the Russian intelligence service, and in the lack of a connection between the military, diplomatic, and commercial agents. The small amount of Russian commerce in the neutral States was also a great drawback and disadvantage to the Russian intelligence service. The German intelligence and counterespionage services were very extensive and had countless ramifications and even in time of peace possessed a thoroughly organized network of agents backed to a large extent by commercial and financial circles and making extensive use of various commercial firms and undertakings, as well as political, economic, and public circles in most of the neutral countries.

After a long interchange of correspondence between the Stawka and the general staff, the entire intelligence activities were put under the direction of the latter in June, 1917, thus effecting the centralization of the service. An exception was made with the staff of the Caucasus front and that of the Odessa Military District. The Russian military agents and the staffs of the districts Turkestan, Irkutsk, Omsk, Prumursk, and Ssamursk were in charge of the intelligence service in the Far East.

In September, 1917, there was a conference of the heads of the individual intelligence nets at which time the limits of the various districts were outlined, tasks laid out and credits appropriated. These measures greatly furthered the intelligence service, so that by the end of September, 1917, a net of agents extended over western Europe, the near and far east, and rendered a great deal of very valuable service. After the October revolution, the general staff found itself in a difficult situation on account of the general condition of affairs and the lack of funds. Although the directors of the foreign service could not be supplied with funds, the intelligence work abroad ran along automatically for some time longer.

After the signature of the treaty of Brest-Litowsk, the chief military staff suddenly lost its best sources of information owing to the liquidation of all the military staffs. The organizations taking the place of the military staffs did not understand how to do the work.

As the chief military staff cut off all funds in 1918, the Russian division of the interallied intelligence office in Paris had to close. The situation in Russia separated it from western Europe and as a result the Russian intelligence work abroad ceased automatically. During this period, the chief military staff

received its information from the French Military Mission, the staff of military commanders and the Front Department of the Military Commissariat of the Moscow District which subsequently was converted into the Bureau of Operations of the People's Commissariat for Military Affairs (Operod-Narkomwojean). Therefore, in 1918, the intelligence service consisted of the following units: (a) Intelligence department of the Operod-Narkomwojean; (b) intelligence department of chief military council; (c) staff of military commanders of the Moscow district. There was no head organization representing the centralization of these several services.

In May, 1918, there was a conference of the chief intelligence officers of the all-Russian general staff, which was held in the military statistical division which represented the central intelligence organization. At this meeting the various districts were defined, and a scheme of work laid out for the intelligence and counter-espionage services. In conformity with this prearranged scheme the direction of the intelligence work was turned over to the all-Russian general staff, which also was invested with the direction of the Russian intelligence and counterespionage service abroad, the planning of the various districts and the mobilization of the service as a whole. The Operod-Narkomwojean was to be in charge of the intelligence service in the Ukraine, Poland, Lithuania, Kurland, Livland, Finland, and the trans-Caucasus. The chief military council had charge of the service in the districts touching and forming the lines of demarcation. The work began but soon afterwards upon orders of the military revolutionary council of the Republic, the all-Russian general staff, and the chief military council were divested of their intelligence functions which were transferred to the field staff of the military revolutionary council of the Republic which, up to the present time, represents the chief central organ of the Russian intelligence service.

TURKEY

NAVAL NOTE

February, 1925

The present Government has been considering as to the advisability of a thorough reorganization of the Turkish Navy by summoning the aid of Japanese naval experts. The Japanese charge d'affaires at Constantinople has stated that any request on the part of the Turkish Government for a naval mission "will not pass without response" at Tokio.

UNITED STATES

NAVAL POINTS AGAINST A UNITED AIR FORCE

February, 1925

[Sources—Various]

I

Unity of Command

Complete success in sea battle can only be obtained through undivided control and direction of all combat elements. For victory, one authority is essential.

The introduction of an air force as an independent element of warfare will mitigate against unity of command, and so against victory at sea.

II

Responsibility in Command

Responsibility in command requires that the training and equipment of the various elements of battle, be subject to the knowledge and direction of the command. Only so can responsibility in war effort be placed and divided responsibility be avoided.

An air mass provided by another department of Government, and assigned to the fleet for a particular tactical task—lacking sea knowledge and fleet training—would operate against the essentials of responsibility in command.

In order that responsibility in war may be placed, full authority must be given to the command in matters of production and use of weapons.

III

Sea Air Work a Specialty

Naval aviation must have extensive training such as will prepare it for the following particular tasks:

- (a) Patrol of trade routes in the approaches to terminal ports.
- (b) Attack on enemy vessels discovered in the area patrolled.
- (c) Attack on enemy ships lying in their bases.
- (d) Attack on enemy naval bases.
- (e) Forming protective escorts for convoys.
- (f) Reconnoitering for the fleet.
- (g) Attack on enemy aircraft prior to, and during a fleet action.
- (h) Bomb and torpedo attack on enemy vessels during a fleet action.
- (i) Spotting for gunnery during a fleet action.
- (j) Laying of smoke screens during a fleet action.
- (k) Screening fleets against submarines.

In order to successfully carry out these different phases of sea air work, naval aviators must not only be able to fly and to fight in aircraft, but they must also be naval tacticians, navigators, and seamen. This means a sea training of years. Such a personnel must know thoroughly all types of own and enemy vessels, their ability to maneuver, powers of offense and defense, and sea value under different conditions of weather. Naval aviators must be indoctrinated in the battle tactics of their own fleet. They must be able to think in terms of naval warfare, and be responsive to the commander in chief's mind. A mistake in their report upon making contact with enemy forces may, later, bear heavily on the outcome in battle. They have need of experience in naval gunnery. Lack of ability in controlling the opening salvos of their fleet in action, may result in the difference between victory and defeat.

In these matters there is too much at stake for a nation to have other than men thoroughly trained in the particular tasks of sea air work—men who have grown up in the fleet are a part of the fleet. Fleet sea air work is just as much a specialty as the torpedo attack of light vessels, the handling of submarines in battle, or the use of artillery in land warfare. Life and training at sea are fundamental for the special duties of naval aviation.

IV

Naval aviation in other countries

(a) GREAT BRITAIN

The British Navy has had experience with a united air force as a type of aviation organization. It has found such an organization unsatisfactory to the requirements of fleet air work. Since 1919 the British Navy has been struggling to regain complete control of its aviation. Repeated concessions have been forced from the air ministry until at the present time 100 per cent of all observers and 70 per cent of all aviation pilots may be Royal Naval Personnel. In addition, the airmen of the Royal Air Force on board carriers are now being substituted for by Royal Navy ratings. It is believed to be but a question of time before separation takes place between the fleet air arm and the Royal Air Force.

(b) FRANCE

Aviation in the French Navy is administered by the Naval Aeronautical Department, which is part of the Naval Ministry.

The decree of April 27, 1921, following several acts of Parliament, gave to the navy all coast defenses as part of the sea front. Naval

aviation plays an important part in plans for protecting the coast. French naval aviation is now being considerably expanded to meet the requirements of:

- (1) Operations with the fleet as a fleet air arm.
- (2) Coast defense.
- (3) Overseas operations to the colonies in maintenance of communications, especially for troop convoys and supplies to and from Africa.

In the matter of equipment, reliance is placed on the Under Secretary of State for Aeronautics, in the Department of Public Works, for the purchase of supplies. French naval aviation officers are employed in this department on duties of design and inspection, so that sea experience bears directly on production.

It is to be noted that the French Navy has complete control over the training organization and administration of its air forces.

(c) JAPAN

Naval aviation in Japan is organized on lines very similar to those in the United States Navy. The Japanese Navy has complete charge of all branches of its aviation.

(d) ITALY

Italian aviation activities are combined in the Royal Air Force, which was established by Royal decree on March 28, 1923. A ministry for aviation, as a separate department of Government, has not yet been established by legislative action.

The need of large air masses to protect the northern industrial sections of Italy, and to menace the military concentration points of neighboring States, was the motive in the present organization of this air force.

The requirements of the fleet in aviation was a secondary consideration, largely due to Italy's geographical position. Already there is evidence that the fleet's aviation needs are not being met to the satisfaction of the fleet.

V

Geographical position of the United States

The United States is widely separated from nations of powerful air forces. The need of large masses of air units for home defense to meet similar masses from neighboring States is not apparent.

The first line of defense is the fleet. After the outbreak of hostilities, this line of defense will, in all probability, be operating from bases distant from the home coasts. Aviation under such condi-

tions is a vital arm of the Navy; and can only give complete naval aviation efficiency, if it is closely coordinated and controlled by men who are flesh and blood with the fleet.

Results of sinking test given in three sentences

[From Baltimore Sun]

By Capt. D. W. Knox, United States Navy, retired

WASHINGTON, February 19.

The very comprehensive report of the naval special board appointed to study aviation questions in their relation to naval matters, made public yesterday, might be summed up in three sentences:

Aviation can not scrap navies.

Navies can not scrap aviation.

For ocean work the two forms of power are inseparable.

This is the substance of the board's conclusions after several months of the most exhaustive investigation, which included the examination of some 75 witnesses representing the best authorities in the country on all sides of the question—not excepting witnesses from the Army air force who have been most active in pressing for divorcing naval aviation from naval control and forming an independent consolidated air force.

WARSHIPS NOT OBSOLETE

The naval board holds that air power is not so menacing to sea power that fighting ships of any type are rendered obsolete and useless. Their opinion is based upon the results of experiments which show that the damage to be expected from aerial attacks upon ships is not so serious as to prevent ships from continuing to operate effectively.

Moreover physical laws prevent aircraft from ever becoming a satisfactory substitute for ships in performing the main functions of a navy—the control of sea communications. On the other hand, aviation has become an instrument of such tremendous naval importance that liberal aviation forces must form a part of a fleet and be under naval control. Naval aviation is indispensable in many rôles which indirectly increase the power of the fleet—such as scouting, spotting, and observation—and in addition aviation may directly magnify the offensive power of the fleet by the use of torpedoes, bombs, and gas against enemy ships. Only the Navy itself can best develop and use these manifold advantages of aviation against hostile naval power.

FOREIGN NAVIES ALSO AIDED

In all this complicated question that phase relating to the degree of vulnerability of battleships to aerial bombs has been given the most prominence in the press, and is undoubtedly of cardinal importance. The naval board has wisely seen fit to discuss at length and even to disclose facts previously held confidential which will be of much value to foreign navies. When all is said and done the case will be decided by the American public and they should be sufficiently well informed to permit of their making a wise decision.

In reviewing the bombing experiments against the old battleships *Virginia*, *New Jersey*, and *Ostfriesland* it is pointed out that not only were these ships of antiquated design but that even the normal water-tight integrity of such poor

design was in a noneffective condition. There was no personnel on board to make temporary repairs or to operate the pumps. The theoretical water-tight compartmentation was nullified by the removal of water-tight doors, by leaks in bulkheads and inner bottoms, and by the absence of the "battle plates" normally used to cover the glass air ports.

LEAKS MIGHT HAVE SUNK HER

The *Ostfriesland* was in such poor condition of repair that while being towed from the navy yard to the bombing grounds and before being bombed she leaked enough water to sink her 1 foot. This represents many tons of water. Nothing was done to stop those leaks during the succeeding two days when she was subjected to aerial bombardment. Sixty-nine bombs were dropped, out of which 16 hits were made from low altitudes. The accumulation of water from leaks existing before the bombing began might well have been the primary cause of ultimate sinking.

These early experiments against all three ships were decidedly inconclusive. It is one thing to sink an inert hulk, consisting of substantially nothing but an outside shell, and even that in poor condition. That is not a battleship, no matter what she may once have been. It is quite another matter to sink a vessel such as the *Washington*, in good physical condition, designed like a honeycomb, so that if a number of cells are punctured a great many other cells remain in good condition to keep her afloat. It was these characteristics of the *Washington* which prevented her sinking during three days of gale, notwithstanding extensive damage from five large bombs which had been previously exploded close to her bottom.

OLD THEORY SHATTERED

Of the five holes in the *Washington's* bottom, three were the result of large underwater bombs, 2,000 pounds each, exploded well within the distance from the hull at which it has been claimed that one such bomb would sink a battleship. The other two holes were each made by charges equal to the heaviest carried by modern torpedoes—400 pounds of high explosives. It should be understood that the effectiveness of underwater explosions varies greatly with the distance from the target. In discussing this question in 1922 the first lord of the British Admiralty formerly stated in Parliament that it would require an 8,000-pound bomb, bursting 10 feet from a hull to equal the destructive effect of one torpedo exploding in contact with that hull.

Of course, if a 2,000-pound bomb (which carries 1,000 pounds of explosives) had been used in contact with the *Washington's* hull, the damage would have been greater than she sustained from any single charge used in the experiments. But matured technical opinion is that the resulting damage would not have been fatal. The probability of such a shot being made in action is so very small that it can not effect general conclusions. Moreover, important improvements in underwater protection are likely to result from the *Washington* experiments.

ANOTHER BELIEF DISPROVED

These experiments further disproved conclusively the extravagant claims which have been made recently with respect to the vulnerability of ship's condensers. It has been contended that the ship's ability to steam could be completely prevented by the damage to condensers resulting from underwater explosions of bombs hundreds of yards away. After the five explosions in contact with or only a few feet distant from the *Washington* her condensers

were still unimpaired. This was not in any sense a surprise to the Navy, which has had extensive experience with underwater explosions for many years, dating back as far as the Civil War. During the late war upward of 40,000 depth charges were used against submarines by our Navy. In many cases 20 or 30 depth charges, each carrying 300 pounds of high explosives, were used by lightly constructed destroyers in barrage attacks upon submarines. Depth charges ordinarily explode only about 50 yards from the vessel dropping them. If the firing vessel is steaming at slow speed, this distance may be much less.

DISTANCE FIRING MORE DANGEROUS

So much for underwater damage. There still remains the question of casualties from bombs which strike the ship itself. The naval board points out that this problem is precisely the same as the problems of protecting ships against the plunging fire of large-caliber projectiles fired from long-range guns, which in flight may reach an elevation of 18,000 feet.

The fact is that gunfire of this kind has become a normal expectation as the result of airplane spotting, greatly increasing the accuracy of long-range gunners, and is more dangerous to the target ship and more difficult to provide against than aerial bombing. The solution lies in providing horizontal deck armor of sufficient thickness to prevent the shell or bomb from penetrating to the ship's vitals, and to cause the explosion to take place above decks, where it will be comparatively harmless.

With adequate armor the resulting damage will be local—not general or vital to the ship's existence. The *Washington* experiments demonstrated that with horizontal deck armor the menace from the air can be satisfactorily met. In the words of the board, "The results of tests demonstrated that the hull of the latest type of battleship is capable of withstanding to a remarkable degree the attacks of aerial bombs, and that with a crew on board to make necessary repairs, run the pumps, and man the antiaircraft guns such a ship as the *Washington* would be substantially secure against air attacks."

DISPUTES MITCHELL'S STAND

Some will say that the naval board lays too much stress upon the value of gunfire as a protection against aerial attack. General Mitchell has recently testified before a committee of Congress that he was shot at in the air a great number of times on the western front by the antiair guns of all nationalities, including American, and that such fire is very ineffective. Doubtless that was true during the war.

It was a very novel experience for land artillery to fire at a rapidly moving target. The Navy, in its gunnery, has always had to consider not only a moving target but a moving gun platform, and has naturally developed systems of gun pointing and fire control quite different from those in vogue on shore. During the war the armies gradually came to the same general system for their antiaircraft fire, as was commonly employed in the Navy for all purposes, but necessarily they could not perfect their instruments and methods in a short time.

ANTIAIRCRAFT GUNNERY IMPROVED

Meanwhile, since the war great strides have been made in antiaircraft gunnery, which is now probably five times as accurate as it was in 1918. Moreover, further progress is being made rapidly in this specialized form of gunnery, while at the same time the tendency toward larger planes to carry larger bombs will give antiaircraft guns a larger target.

Other forms of defense against aircraft are being developed. On the whole, the conclusions of the naval board that air developments have not rendered navies in any sense obsolete and that "aviation has taken its place as an element of the fleet and can not be separated from it," may be accepted as entirely sound, and the only proper basis for future naval defense of the country and its maritime interests.

The fleet air arm—Fetters that imperil sea security—Farcical situation

[From the London Morning Post, February 24, 1925]

The fleet air arm figures conspicuously in the memorandum of the Secretary of State for Air which accompanies this year's air estimates.

Emphasis is laid on the fact that this branch of the air force is being increased to meet naval requirements. In order to convey the impression that its nautical character is fully provided for special allusion is made to the inclusion of naval personnel within its ranks. Furthermore, we learn that this service will, from now onwards, figure as a charge on the naval instead of the air estimates.

It appears, however, that this sum is to be transferred en bloc to the air ministry, which will continue to administer the fleet air arm. In other words, that department will call the tune while the Admiralty will have to find the money to pay the piper. This seems to be the crowning absurdity in a system which, while it is farcical in peace, will be a serious menace to our sea security in war.

MODERN SEA FIGHTING

Let us briefly recapitulate the facts, which have been exposed time and again in these columns. The fleet air arm exists solely to provide the personnel and aircraft required by the navy for the work of that service in its own element. Sea fighting now includes war on the sea, under the sea, and over the sea. The forces involved must necessarily be coordinated under one command. That command must obviously be naval. The aircraft must be specially designed to be suitable for this work. The personnel must be essentially naval in character in order to perform duties which are primarily connected with the sea and with ships. They must also be trained in air work.

This air service is entirely distinct from home air defense, and the aircraft and personnel belonging to it can no more be considered as being available for the latter than the crews of warships can be regarded as being a reserve for the army.

About a year and a half ago matters came to a crisis. The air ministry had steadily declined to surrender naval air work to Admiralty control, while manifestly incompetent to carry it on without naval personnel. An inquiry was held by a committee presided over by Lord Weir, a one-time minister for air, who was mainly responsible for the findings. The proposals of this committee were hurriedly accepted by the Government on the eve of an election which put them out of office. The scheme, then hastily adopted, has never been properly discussed in Parliament, and the ludicrous position it has created is not generally realized.

THE PRESENT SITUATION

The present position is, broadly, as follows:

1. The Admiralty is responsible for the efficiency of the navy, but does not control an indispensable unit of the fleet—the air arm.

2. The Admiralty is responsible for the safe conduct of shipping in war, but the navy does not possess one single aircraft to provide air escorts or to work in conjunction with the auxiliary patrol in defending approaches to ports.

3. The air ministry has made little or no provision for either of these latter duties.

4. There is practically no reserve of trained personnel, and only an entirely inadequate reserve of machines for fleet-air work in war.

5. The observers of the fleet air arm are naval officers and do not change their status as such.

6. The flying personnel of that service will, under the existing scheme, be 70 per cent naval and 30 per cent R. A. F. These naval officers are forced to assume a dual status by being given duplicate commissions, one in their own service and one in the R. A. F.

7. Naval ratings are being detailed to relieve airmen in flights belonging to the fleet air arm.

8. When embarked all ranks and ratings are under the command of the captain of the aircraft carrier, but ashore they come under the command of an air force officer. The air work carried out from aircraft carriers is of a highly specialist nature, that from the shore bases is largely in the nature of preliminary training. If naval captains are competent to command naval air personnel at sea, they are equally competent to command these bases.

9. Except for the time spent in actually learning to fly the greater part of the training of this personnel has to be carried out in existing naval establishments—gunnery, torpedo, and signal schools.

Air force instructors do not possess the necessary knowledge or experience to teach naval air duties. The course has lately undergone drastic alteration, because it was found that much of the time spent by naval officers training for the fleet air arm at shore air stations was completely wasted, and it was not till they got to sea in carriers that instruction took a practical form.

THE INCUBUS

At every stage it is the interposition of air ministry control and air force command which complicates and hampers the administration and development of sea air work. In the struggle to shake off this incubus the Admiralty has earned a reputation in uninformed quarters for being reactionary and quarrelsome. In sober fact, the sea lords have been conciliatory to the verge of weakness in going on so long with a system which is a menace to naval efficiency.

While the fleet air arm is an indispensable part of the navy, it is an excrescence to the air force. It will now be a charge on the naval estimates. It will soon be manned almost entirely by naval ranks and ratings. The navy alone needs it. There is, therefore, no longer the slightest justification for continuing the present farce whereby a purely naval service is under the control of the air ministry.

What united air force has done for Great Britain in matter of air records

[From British Press]

Our lost air power

Not a single world's airplane record now stands to the credit of Great Britain. The bulk are held by United States and France.

Such is the fact revealed by a complete list of aviation records just issued by the International Aeronautical Federation.

The federation, to which our Royal Aero Club is affiliated, is the body which places its seal of authority upon aerial records. Until it has done so a record is not recognized officially.

The figures, including records for speed, distance, duration, and altitude, are:

| Nation | Number or records |
|---------------------|----------------------|
| United States----- | 53 |
| France----- | 14 |
| Denmark----- | 5 |
| Czechoslovakia----- | 4 |
| Sweden----- | 1 |
| Great Britain----- | 0 |

The 1,890 miles nonstop flight from St. Johns, Newfoundland, to Clifden, County Galway, with which, in June, 1919, the late Sir John Alcock and Sir A. Whitten Brown won the Daily Mail £10,000 trans-Atlantic prize, is recognized by the federation as an "authentic performance," but does not come under the heading of world's records.

To-day markets are developing overseas, and the countries which hold world's records for speed, height, distance, duration, and weight-carrying are going to win these orders. It is not merely a question of trade. It affects our future safety.

An industry deprived, in years ahead, of a big overseas trade, can not be in such a position for output in an emergency as one which is constantly drawing lifeblood from orders from all parts of the world.

HUMILIATING POSITION

Why should this country, with brilliant designers and pilots, find itself in a position so humiliating?

The answer is:

(1) That our industry is not encouraged to go out after records by an officialdom which regards them as unimportant; and

(2) That a constant interference by official experts with private designs robs the industry of initiative.

A year or so ago the French Government saw that the United States were depriving her of some of her records, whereupon substantial premiums were offered to manufacturers who won back these records. The result is that France has already regained vital records for altitude, duration, and speed.

NATIONAL IMPORTANCE

"In this country, the view in certain quarters is still persisted in that the position, so far as we are concerned, is nothing to worry about," yesterday observed

Mr. C. M. Poulsen, technical editor of *Flight*—official organ of the Royal Aero Club—which in a trenchant article on the humiliation of our being at the foot of this list, declares that such an intolerable position must be rectified without delay.

"I and many others disagree totally with the attitude that the winning or losing of aerial records is really of small concern," he continued. "As a matter of fact, the gaining of airplane records is now becoming a matter of national importance. At a cost which would be trifling compared with the results accruing, Britain, which has the designing ability and piloting skill, might assume a commanding position in the air-record lists of the world; and our constructors and airmen should have accorded them the encouragement they deserve and need."

Fleet air arm control

[From Naval and Military Record, London, January 14]

Notwithstanding the manifestly conciliatory and concessional policy of the air ministry toward the Admiralty during the past year, there are definite indications that the controversy has not been finally composed by compromise. In one sense, indeed, compromise is only calculated to stiffen the attitude of the sea lord upon the whole subject, since it amounts to an inferential admission of the reasonableness of the claims which have resulted in it. The Admiralty contention is very simple and very logical. It simply demands the unfettered control of the whole of the aerial organization of the Royal Navy. The air ministry has gone a long way toward meeting this claim, but it is the one final reservation which remains the real bone of contention, the refusal to surrender administrative authority.

Even the new arrangements are quite unnecessarily cumbersome in consequence of this quality of control. In order to qualify as pilots in the fleet air arm, naval officers have to be "lent" to the Royal air force. We do not suggest that the system may not work perfectly well. But it is simply redundant. The air arm is as much an integral part of the navy to-day as the submarine service. The new gigantic air cruisers and flying boats are intended purely for service with the fleet. As things now exist, the air ministry may interfere with their employment for any purpose the Admiralty considers necessary. That they would be extremely unlikely to do so does not dispose of the absurd anomaly under which they are able to do so. Duality of control has always proved a millstone around the neck of efficiency in all military organization. To deny to the navy the absolutely unrestricted use of any of its weapon or personnel is an indefensible proposition.

The air ministry was one of the mushroom growths of the Great War. There was no expectation that it would survive the Great War. Ever since the armistice it has been struggling to justify its continuance, even to the degree of usurping the functions of the meteorological office. Aircraft are as much part of an army as tanks, as much part of a navy as destroyers. The existent situation is simply a struggle on the part of a new bureau to survive against the sound, long proven doctrine of the centralized control of all the component units of a fighting force.

The organization of the air forces

[From Nya Dagligt Allehanda—Swedish]

Copenhagen recently has been visited by one of the most distinguished contemporary experts in aviation, Colonel the Master of Sempill, who during the war was at the head of the technical department of the British air forces and now is the organizer of the air forces of Japan. A correspondent to the Svenska Aftonbladet had an interview with the colonel and demanded to get his opinion about a question that even in this country now is actual.

There are persons who are of the opinion that the air forces of the navy and those of the army ought to be under the same control, while others prefer a separate organization for each of these military air forces. Who are right?

Experience testifies—the colonel stated—that it is happiest if the air forces of the navy and those of the army are controlled separately.

For if the highest leader of all the air forces of a country is an admiral, one may be persuaded that the air forces of that country within a short time will have more hydroplanes than army engines, and that the air forces of the navy will be favored in all ways at the cost of the army's air forces.

The state of things will be the reverse if a person belonging to the army is the highest chief. In that way the sound development of the total air forces of the country may be jeopardized.



CONFIDENTIAL

Division C

**OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.**

**MONTHLY INFORMATION
BULLETIN**

NUMBER 4—1925

APRIL, 1925

DISTRIBUTION

In general Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



**WASHINGTON
GOVERNMENT PRINTING OFFICE
1925**

CONFIDENTIAL .

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

NUMBER 4—1925—APRIL, 1925

FOR CONVENIENCE IN ROUTING

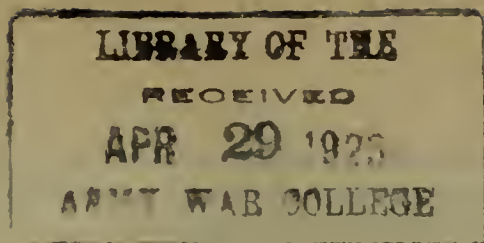
| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

| | | |
|--|-------------|------|
| ARGENTINA: | | Page |
| Organization of naval forces for 1925----- | | 1 |
| Miscellaneous notes----- | | 2 |
| FRANCE: | | |
| The Wrangel fleet at Bizerta----- | | 4 |
| Naval notes----- | | 6 |
| GERMANY: | | |
| Ordnance note----- | | 7 |
| GREAT BRITAIN: | | |
| Ordnance data----- | | 7 |
| Instructions for removing choke in bore of naval guns----- | | 10 |
| Decoppering guns by chemical method----- | | 14 |
| Photograph of submarine L-53----- | Faces p. 16 | |
| Photograph of submarine X-1, M-1----- | Faces p. 17 | |
| Short Bros. aircraft manufacturing plant----- | | 16 |
| George Parnall Co. plant----- | | 20 |
| Hawker Engineering Co. aviation plant----- | | 22 |
| Colonial airship service----- | | 24 |
| Notes on Mediterranean policy----- | | 25 |
| Aviation notes----- | | 30 |
| ITALY: | | |
| Miscellaneous notes----- | | 34 |
| JAPAN: | | |
| Personnel of navy----- | | 35 |
| Scrapping of ships in accordance with Washington treaty----- | | 36 |
| Political estimate----- | | 38 |
| Naval notes----- | | 48 |
| Aviation notes----- | | 50 |
| Miscellaneous notes----- | | 54 |
| PARAGUAY: | | |
| Aviation service----- | | 58 |
| RUSSIA: | | |
| Miscellaneous notes----- | | 59 |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.



ARGENTINA

ORGANIZATION OF NAVAL FORCES FOR 1925

During the current year the ships of the Argentine Navy in commission will be distributed as follows:

In commission

Division of instruction:

Armored cruisers—

San Martin.

Belgrano.

Criuser *Buenos Aires.*

Tugboat *Azopardo.*

School ships:

Armored cruiser *Garibaldi.*

School ship *Almirante Brown.*

Mine sweeper *A-1.*

Torpedo boat *Thorne.*

Group of explorers:

Torpedo boats—

La Plata.

Jujuy.

Group of mine sweepers (and layers):

Mine sweepers—

A-2.

A-4.

A-7.

Independent ship:

School ship *Presidente Sarmiento*
(fifth year of naval school and
second course in seamanship).

Hydrographic ships:

Gunboat *Patria.*

Lighthouse tender *Alférez Mac-*
kinlay.

River transport *Sayhueque.*

Ships dependent on the direction general of administration:

Ocean transports—

Bahia Blanca.

Guardia Nacional.

Rio Negro.

Patagonia.

America.

Vicente F. Lopez.

1° de Mayo.

Ships dependent on the direction general of administration—Continued.

River transports—

T-1.

T-2.

T-R1.

Tanker *Ministro Ezcurra.*

Ships dependent on the chief of the naval base, Puerto Belgrano:

Mine sweeper *A-3.*

Tugboats—

Quevandi.

Corvina.

Pengüín.

Delfín.

Lighthouse tender *República.*

Dredge *Cachalote.*

Ships dependent on the chief of the naval base, Rio de la Plata:

Gunboat *Paraná.*

Torpedo boats—

Corricutes.

Ruchardo.

Tugboats—

Tchuelche.

Mero.

R-51.

Patrol boat *Fulton.*

Floating crane *Pilcomayo.*

Vessels assigned to the naval school:

Patrol boats—

A-5.

A-6.

Ships dependent on the chief of the naval arsenal, Buenos Aires:

Yacht (presidential) *Adhara.*

Tugs—

Fueguino.

R-3.

Martin Garica Island:

Patrol boat *Gaviota*.

Direction general of material:

Patrol boat *Resguardo*.

Ships dependent on the prefecture general of marine:

Patrol boats—

Vigilante.

Ushuaia.

Ships dependent on the prefecture general of marine—Continued.

Tugs—

Petrel.

Cormoran.

Assigned to orders from the minister of marine:

Patrol boat A-9.

Out of commission

In foreign waters:

Battle ships—

Rivadavia.

Moreno.

At the naval base, Puerto Belgrano:

Armored cruiser *Pueyrredon*.

Ocean transports—

Chaco.

Pampa.

Tug *Ona*.

At the naval base, Rio de la Plata:

Cruiser *9 de Julio*.

Monitors—

Libertad.

Los Andes.

El Plata.

Destroyer *Catamarca*.

Torpedo boats—

Murature.

Bathurst.

Jorge.

At the naval base, Rio de la Plata—Continued.

Patrol boats—

A-8.

A-10.

River transport *Inacayal*.

Gunboat *Rosario*.

Corvette *Uruguay*.

Destroyers—

Misiones.

Entre Rios.

Comodoro Py.

At the naval arsenal, Buenos Aires:

Destroyer *Córdoba*.

Monitor *Independencia*.

Tugs—

Rawson.

Albatros.

This organization must be finished by the 15th of February, and the director generals have been instructed accordingly.

The schools which have been functioning aboard the *Garibaldi* and the *Almirante Brown*, will continue as before.

The school ships will be provisioned from the naval base, Rio de la Plata, by means of the patrol boats A-1 and *Thorne*, which they will man. Their official base will be the Rada in La Plata.

The hydrographic service will take charge of provisioning Faro Recalada and Ponton de Los Practicos, by means of the patrol boat A-1.

ARGENTINA

MISCELLANEOUS NOTES

Contract for land planes

The Argentine Navy has entered into a contract with the Curtiss Aeroplane and Motor Co. for the delivery of ten training land airplanes—single engine, 160 horsepower—38 feet wing spread, arranged for a pilot and student aviator.

Delivery may be made any time after four months.

One hundred and twenty thousand dollars (Argentine paper pesos, more or less) has been appropriated for this purpose. The planes are to be built at Ogdensburg, N. Y. by a subsidiary division of the Curtiss Company. A representative of the Argentine Navy is already en route to America as an inspector.

At any time the Argentine Navy may decide to change from this type of plane, which will cost \$12,000 per, to a plane less expensive.

Corrosion of duraluminum flying boats

Information has been received that the Argentine Navy is experiencing difficulty with their flying boats which are made of duraluminum.

It appears that whenever the paintwork on the metal surfaces has been scratched or otherwise damaged corrosion has taken place through the action of *salt water* or *salt air*.

Extreme care is being taken to cover these paint abrasions and metal scratches, but in several instances the metal has corroded through and the material has had to be welded or otherwise repaired.

Cruise of naval transport to South Orkney Islands

On February 5, 1925, the Argentine naval transport *1º de Mayo* sailed from Buenos Aires to carry relief, personnel, and supplies for the meteorological observatory maintained by the department of agriculture in the South Orkney Islands.

The vessel will proceed directly to Puerto Cook, on State Island, where the tanker *Ministro Ezcurra* will provision it with water and oil; then it will go directly to the Orkney Islands.

It is calculated that, if no bad weather is met, the round trip will take 20 days.

This voyage is made once a year to relieve the personnel of the observatory and take them supplies.

Projected aerial postal service between France and Argentina

(From Argentine press)

On January 15 three aviators of the Syndicat Latecoere, a French company, arrived at Buenos Aires from Rio de Janeiro with mail, this being the first aerial transportation of mail between the two capitals.

It is understood that the Syndicat Latecoere, which at present has an aerial mail service between Tonlouse and Dakar, Senegal, aspires to inaugurate an aerial mail route via the Cape Verde Islands, the island of Fernando Noronha, and Rio de Janeiro to Buenos Aires. If this scheme can be successfully worked out mail can be brought from Europe in nine days.

FRANCE

THE WRANGEL FLEET AT BIZERTA

(From the British press)

Admiral Exelman's energetic refusal to hand over the Wrangel Bizerta fleet to the Bolshevist allies of Germany, despite ministerial orders, was at first judged severely in admiralty circles. Subsequent events, investigations, and revelations, both in British and French colonies, however, threw light on the Boche-Bolshevist plan, cleverly engineered on a wide scale, to foster armed rebellion in Africa and Asia, and vindicated Admiral Exelman's decision. Against that immediate danger Franco-English entente and und deferred and active cooperation are needed. Bochelands boast is that since she has lost her colonies England and France are to lose theirs.

[From the French press]

Apparently—and this is the least that can be said—it was without giving the matter much serious thought that the Government became involved in the Wrangel fleet affair.

When this question came up, the predecessor of Mr. Herriot, Mr. Poincaré, before promising anything, made very definite reservations. Not only did he subordinate the turning over of these boats to the formal recognition of the soviets, but he clearly specified that they might be retained by us as a guaranty until the numerous and important pending questions with Russia had been settled. As it was obvious that these would not be settled for a long time to come, we maintained the right to keep this fleet or to turn it over only when a satisfactory arrangement had been concluded.

This policy was a very reasonable and wise one and should have been continued. But on this question, as on many others, the present Government had made it a point to take exactly the opposite stand from that of its predecessor.

With much ado and remarkable haste it recognized the soviets: this news was loudly proclaimed on the eve of the British elections with a view to help along comrade MacDonald, who nevertheless was

defeated. A mission composed of soviet admirals and naval officers was officially received at Bizerta, and as one of our naval chiefs showed small enthusiasm over them the secretary of the navy suddenly transferred him to another post. He is the first victim of the soviet squadron; most likely there will be others.

But when we were about to turn over these boats to the soviets, Russia's neighbors north and south, the Baltic States and the Black Sea States, began to protest vehemently against a measure which constitutes a direct menace to them. The balance of forces would be completely disrupted; Soviet Russia would have a new arm which she in no way has need of. For, as a matter of fact, these boats are armed with guns—something our Government did not think of. Machinery, goods, and works of art can be transferred from one State to another without inconvenience, but it is quite another matter when it comes to battleships and torpedo boats. There is nothing surprising in the fact that the nations against whom they might be used have become alarmed.

The country most legitimately upset is Rumania, and it so happens that she is precisely the country attached to us by the most powerful ties. We have nowhere in the world more devoted and reliable friends than the Rumanians. Shall we, just for the sake of gratifying the soviets, run the risk of incurring their resentment?

It can not be held that Rumania is alarmed without reason about this soviet fleet. In the Bessarabian affair Russia has treated her very badly and continues to do so on every occasion. On the frontier Russia foments trouble continually and a state of war practically exists there. If the fleet joins in besides and the Black Sea becomes a Russian lake the situation is sure to become more serious.

If Wrangel's boats should go to the Baltic instead of the Black Sea, the effect of their presence there would be no less mischievous. It is only a few weeks ago that the soviet authorities attempted to overthrow the Esthonian Government by a coup d'état. Bolshevik gangs, directly paid by Moscow, took by assault the barracks, railway stations, and public buildings of Reval. Is it not sheer madness to considerably increase the armed strength of a country which prepares such attacks against her peaceful neighbors? Is she not already too strong?

There is no nation in the world less pacific than Soviet Russia. Events have proved this beyond doubt. The rights of peoples, diplomatic ethics, international conventions are nothing but mere words as far as she is concerned. To increase her navy is simply to increase the danger of incidents and conflicts with all her neighbors.

Before becoming involved in this affair the French Government should have weighed the consequences, for it was easy to foresee them. But it did not do so and now it is in a very embarrassing position. The Government is endeavoring to extricate itself by saying that this Wrangel fleet is not worth anything, being merely a lot of old junk. If such is the case why do the soviets want to take possession of it? The thing to do would be to sell this junk where it stands and credit our Russian account with the proceeds. It would be that much gained.

However, there is a good deal besides junk in this fleet. Among other units there is a well-armed battleship of rather recent date, launched in 1914, and which unquestionably is worth something; there are destroyers and submarines which can all be used against countries having no navy. The turning over of these boats to the soviets will not fail to add a new element of trouble in Europe, already in a sufficiently troubled state. Has this important question been taken up with the British Government? It would be interesting to know.

FRANCE

NAVAL NOTES

The destroyer leader *Lynx*, 2,400 tons, was launched at St. Nazaire February 25, 1925.

This completes the launching of the six destroyer leaders, 2,400 tons, authorized by the 1922 program.

The destroyer *Tempete*, 1,400 tons, was launched at Nantes February 24, 1925.

The destroyer *Tornade*, 1,400 tons, was launched at Bordeaux March 12, 1925.

The contract for building the 6,500 oil tanker, as reported in above reference, has been awarded to the firm of Chantiers de la Seine, Cherbourg, construction to commence immediately.

[From the British press]

A telegram from Cherbourg states that the French Government has given orders for a station for powerful bombing airplanes to be constructed to the east of Cherbourg. The preliminary work of

making the ground suitable for the landing of airplanes has already been begun on the outskirts of the town. The new station, which will be the most important in France, will be controlled by the French naval authorities. Two triangular masts, 125 feet in height, are to be erected in the station for naval aviation wireless purposes.

GERMANY

ORDNANCE NOTE

The following information was obtained in a conversation with a German general staff officer on the subject of the construction and operation of the long-range rifle used in shelling Paris in the war.

Informant stated that the gun was in reality two guns; that is to say, that the gun proper was the usual large 40-centimeter siege howitzer, but that there was a 21-centimeter rifle placed inside. By reason of this it was possible to place an abnormally heavy powder charge into a 21-centimeter projectile; a charge, in fact, so heavy that it would have blown to pieces the usual 21-centimeter fieldpiece.

They had no realization of the actual potentiality of such a weapon, and during the experiments and testing which took place at the works in Mappin the engineers were astounded to have the projectile disappear completely. Subsequently a report was received from the vicinity of Helgoland that a fisherman had objected to being shot at from an unknown source. Consequently it was ascertained that by variation of the angle of fire from a low degree to the maximum of 45° it was possible to obtain a great variation of trajectory. Naturally accuracy was out of the question, and when shelling Paris from a distance of 120 kilometers the artillerymen were uncertain as to where the shots would take effect.

Informant stated that four of these rifles were constructed, but he did not know if they had been destroyed or not.

GREAT BRITAIN

ORDNANCE DATA

The following information was obtained during a recent visit to Woolwich Arsenal:

The 16-inch guns for the *Nelson* and *Rodney* have been divided between Woolwich Arsenal and outside manufacturers, the arsenal only being allowed to manufacture 6 of these guns, while it is understood that Vickers are manufacturing about 18. The arsenal completed the first gun ahead of the manufacturers, and this gun is

now at the proving ground at Shoeburyness for proof firing. The following particulars were obtained from an inspection of the guns under manufacture at the arsenal which were inspected during this visit. The gun is a 16-inch .45-caliber gun; total weight, including breech mechanism, 108 tons; total length of gun, 742 inches. The gun is of steel and wire construction, following the usual British practice, but with a great deal less wire than they have been using in the past, as the complete gun only contains 17 tons of wire, whereas it was stated that if the practice followed in the 15-inch guns had been used there would have been over 25 tons of wire in this gun. Conversation with the master mechanic in charge of the big gun shop resulted in the information that this gun is considered the stiffest gun that they have turned out and that the actual droop of the two guns so far completed has not exceeded the average figure obtained on the 15-inch .42-caliber guns previously manufactured, this improvement being attributed to the decreasing amount of wire used in the gun construction.

As previously stated, these guns are fitted with the Smith-Asbury type of breech mechanism, with hydraulic control, and are side swinging, each turret to contain two right-hand and one left-hand gun. The breech mechanisms are fitted with alternative hand gear for use in case of failure of the hydraulic control. This handwheel was criticized by the shop foreman as not being entirely satisfactory, as it consisted of a large handwheel forward of the hinge pin which rotated the breech plug around the hinge pin, and when this operation was completed and the plug was home it was necessary for another man operating a fairly small operating lever to rotate the plug to its lock position. This was considered a most awkward and unsatisfactory design.

The guns are rifled with uniform rifling, one turn in .30 caliber, 96 grooves, the rifling being of the standard ribbed rifling, which has been described in previous reports on 15-inch guns, and contain no particularly new features. But the shop foreman volunteered the information that the depth of the grooves was slightly less at the muzzle than at the origin of the rifling, and that also the width of the grooves was varied slightly on the finishing cuts. He stated that since the war they had gradually tightened up on the inspection of the rifling in all naval guns, and that they are now only rifled three grooves at one time, the three grooves being adjacent and cut by three tools fastened together on one side of the rifling head, the opposite sides which took the pressure in rifling containing merely a bronze bearing plate. One of the guns inspected was in the process of rifling and the job seemed to be a remarkably good one. It was stated that in addition to gauging the bore with a plate gauge that

impressions were taken of the complete bore of the gun when completed and most carefully studied for the indications of any defects. The bore, upon completion of manufacture, was further tested by passing through it a bore gauge about 4 feet long which was 15.98 inches in diameter, and he further stated that the tolerance allowed was not to be in excess of two one-hundredths of an inch. The powder chamber of the gun is a bottle-shaped chamber, and this feature was also criticized by the shop on account of the increased cost and difficulty of machining as compared with a straight tapered chamber.

There was also seen in the gun shop in process of assembly the first 8-inch .50-caliber gun for the new "county" class cruisers. This is also a steel and wire gun, but manufacture had not progressed far enough to permit of obtaining any details. The above information was given by the shop superintendent, but it was noted that the inner A tube for this gun, which was being removed from the furnace for oil tempering, was stated to be 37 feet long, and this would permit of completing a gun .55 calibers in length. This point will be further checked on subsequent visits, but two different sources have stated that the gun was to be only .50 calibers in length. There were also in process of manufacture in the shop some 6-inch .50-caliber guns for the secondary battery of the *Nelson and Rodney*. These guns were also of wire and steel construction, and it was stated that both the 6-inch and 8-inch guns would have uniform rifling, one turn in .30 calibers, with six grooves per inch, rib rifling.

It was further ascertained that a new caliber gun is being utilized for one naval vessel, believed to be the submarine *X-1*. This gun is a 5.2-inch caliber gun, .50 caliber in length, employing fixed ammunition. This was verified later while inspecting the cartridge-case shop, where a number of 5.2-inch brass cases were seen, and the foreman stated that they were the result of a special order for one vessel, and had been manufactured, employing only eight draws of the metal through the presses to make the finished case. The case was rather heavier than our ammunition, and from its length would seem to indicate that the gun did not have any abnormal velocity, and information from another source was to the effect that the muzzle velocity of this gun was about 2,700 foot-seconds.

There were also in process of manufacture in the shops both 4.7-inch and 4-inch semiautomatic guns for antiaircraft mounts, these guns being fitted with the sliding wedge type of breech mechanism similar to that employed on the 3-inch British antiaircraft guns used during the war. The 4-inch guns were .50 caliber in length and the 4.7-inch .45 caliber in length. From conversation it was understood that there were being manufactured some twin mountings for these guns, but in spite of rather pointed requests

permission was refused to go through the mount shop, where it was understood that these mounts existed.

It was noted in general that the work in the big-gun shop was extremely slack and very little activity was displayed. Information was furnished that they were still wire winding guns of a small caliber, as 3-inch, 4-inch, and 4.7-inch, and that to date the question of autofrettage was still in the hands of the research department, and that no guns built by this process were in service or would be in service in the near future. It was admitted that this was the ideal method of construction for small and medium caliber guns, and it was stated that every effort was being made to obtain information from France in regard to this method of construction. Apparently the developments along this line at the United States Naval Gun Factory, Washington, D. C., are not known to the authorities at Woolwich Arsenal. It was stated by the manufacturing department at the arsenal and had also been stated by a representative of the Vickers Co. that the undoubted tendency was to increase the amount of steel and decrease the amount of wire in all future gun design construction, and it was probable that wire winding would eventually be done away with. This was believed to be largely due to the unexpected stiffness obtained in the case of the new 16-inch guns, where the amount of wiring had been materially reduced.

From a general discussion of manufacturing conditions in the shops of the arsenal it is believed that the inspection of the machining operations and manufacturing methods and general inspection of the guns is more severe than the current practice at the United States Naval Gun Factory.

[Note from British press]

It is generally understood that the new British "county" class of cruisers will carry nine 8-inch guns in triple turrets.

GREAT BRITAIN

INSTRUCTIONS FOR REMOVING CHOKE IN BORE OF NAVAL GUNS

The following information has been obtained in regard to instructions given in the Woolwich Arsenal for removing chokes in the bore of guns:

"Choke in a bore is to be removed by means of lapping and milling machines worked by electric motor power when available.

“*Lapping*.—The lapping machine is to be used first, in order to remove the chokes from the lands, so that the milling machine can follow and cut out the choke in the grooves without obstruction.

“When the lapping machine has been attached to the muzzle of the gun, the lapping head, A, should be moved up to the center of the choke, fed with emery and oil, set out by means of the expanding wheel, B, until both the lead pads, D, touch the bore, and secured by means of the clamping wheel, C.

“The machine should then be started and the head fed continuously backward and forward by means of the lever controlling direction of feed, E, until the choke is removed.

“When removing chokes at a greater distance than 8 feet from the muzzle of the gun, the steady bearing, F, should be used to prevent the sagging of the bar.

“When the chokes have been removed, the remainder of the bore should be lapped out to a uniform diameter not exceeding plan size. No. 24 grain emery is suitable for this operation.

“*Hand lapping*.—The following instructions are to be observed when hand lapping the bores of guns:

“(a) Great care is necessary in the operation of lapping.

“(b) The lapping head should not be drawn backward and forward too long over one spot, but frequent measurements should be taken.

“(c) With hand lapping ovality of bore is more likely to occur than with the revolving head used with a lapping machine.

“(d) The most suitable design of head for hand lapping is one controlled by springs, as the pressure is more equally distributed around the circumference of the bore.

“(e) A heavily weighted head is not recommended; such a lapping head in the hands of a careless operator is likely to do serious damage to the bore of a gun.

“*Milling*.—When the lapping operation has been completed, should there be any deposit of copper in the grooves of the muzzle of the gun, it must be removed by means of the hand lapping machine fitted with carborundum sticks, before commencing the operation of milling the grooves by the machine. The rifling grooves must then be thoroughly cleansed from emery.

“The burnishers, B, of the milling head, A, should then be expanded to within 0.005 inch of the diameter of the bore, and before the milling machine is fixed to the muzzle attachment the milling head should be inserted in the bore to ascertain that it is not too tight, and the guide studs, C, will pass along the grooves.

MACHINE, MILLING RIFLING GROOVES, B. L., 12 INCH, MARKS VIII & IX GUNS, MARK I.

GENERAL ARRANGEMENT.

SECTION THRO' CENTRE WORM
DIFFERENTIAL WHEELS & COVER REMOVED



- A. MILLING HEAD
- B. BURNISHING
- C. GUIDES
- D. CUTTERS
- E. FRICTION CHIP
- F. FEED SCREW
- G. QUICK RETURN DEVICE
- H. FEED WHEEL
- K. DRIVING WHEEL
- L. WORM
- M. DRIVING SHAFT
- N. WATER GLAND
- O. FLEXIBLE DRIVING SHAFT
- P. HAND FEED DEVICE



MACHINE, LAPPING BORE, B.L. 12 INCH, MARKS VIII & IX GUNS.

GENERAL ARRANGEMENT.



- A LAPPING HEAD
- B EXPANDING WHEEL
- C CLAMPING "
- D LEAD PADS.
- E LEVER CONTROLLING DIRECTION OF FEED
- F STEADY BEARING.
- G FEED SCREW.
- H LAPPING BAR.
- I INTERNAL ROD FOR EXPANDING HEAD.
- J BOX PINION, DRIVING FEED WHEEL & CONTAINING FRICTION REVERSING GEAR
- K WHEEL, NUT FEED
- L DRIVING PINION
- M " WHEEL.
- N FLEXIBLE DRIVING SHAFT

"When the milling machine has been assembled on the muzzle attachment with the cutters, D, out of the muzzle of the gun, the machine may be started and a set of four grooves then milled.

"If the grooves require milling for distances greater than 4 feet, the friction grip, E, must be loosened when the head has been fed into the gun as far as the length of the feed screw, F, will permit: the feed screw must then be fed back by means of the quick-return device, G, and the friction grip tightened, when the head can be fed farther up the bore.

"Great care must be taken to cleanse the rifling grooves from metal cuttings after each operation, before the return of the milling head toward the muzzle of the gun, to avoid the possibility of the milling head becoming jammed in the bore.

"Upon the assembling of either of the machines, a turn should be given by hand from the first motion shaft to ascertain all is clear before starting the motor."

GREAT BRITAIN

DECOPPERING GUNS BY CHEMICAL METHOD

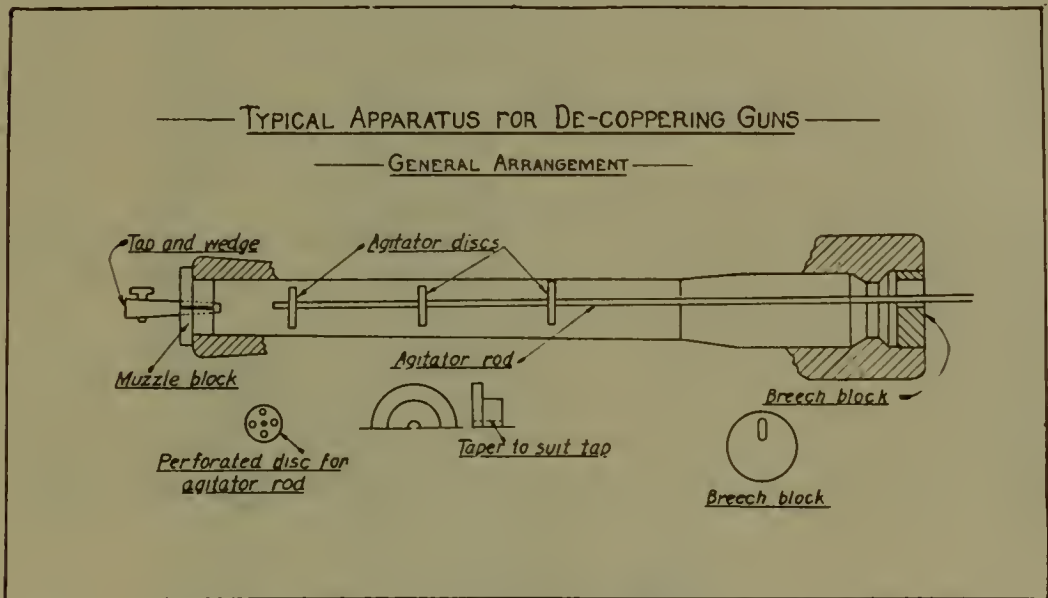
The following information regarding instructions for decoppering bores of guns by the chemical method is furnished. It is understood that this method is in successful application by the British ordnance services, and it is thought that if a successful trial at the United States Naval Gun Factory should demonstrate its value that by the issue of suitable instructions the decoppering of 5-inch .51-caliber guns in secondary batteries of all battleships could easily be carried out on board ship, thus materially improving the ballistic qualities of these guns:

The bore of the gun must be cleaned out thoroughly with pure water, then sealed by plugging the ends of the bore with an apparatus to be made locally. (See sketch.)

This apparatus consists of two wooden blocks, one fitted to the breech opening and provided with an elongated hole in the upper part to admit of free movement of an agitator; the other block is to be fitted in the muzzle end, and should be made in halves, each half being covered with sheet rubber and having a tapered hole through the axial center to receive a wooden tap. This tap serves to draw off the solution when required, and also acts as a wedge to expand the block into the bore. Any other means of sealing the muzzle and preventing the solution from leaking through may be improvised. The agitator may consist of light flexible rod or cane, having two or more perforated disks at intervals along the length acting in the bore of the gun.

When the muzzle disk has been fitted the gun should be depressed 5° and a small quantity of solution run in to test it. When found to be water-tight the gun can be filled as required, when the agitator should be inserted and the breech disk fixed.

The operation can then be proceeded with, the solution being agitate by moving the rod to and from, on the principle of a churn, for say five minntes every half hour; this agitation may, however, be dispensed with during nonworking hours if suitable arrangements for carrying it out can not be made. It will probably be necessary to continue the treatment from 24 to 48 hours, according to the amount of deposit present, after which the gun should be well washed out and scrubbed with a hard piasaba brush.



The solution to be used is made by mixing together ingredients in the following proportions:

| | | |
|-------------------------------------|-------------|-----|
| Ammonia liquor, 0.880 | -----pound | 1 |
| Ammonia persulphate | -----ounces | 10½ |
| Clean water added to make 1 gallon. | | |

The approximate quantity of solution required for any particular nature of gun is as follows:

| | | |
|-----------|--------------|------|
| 13.5-inch | -----gallons | 262 |
| 12-inch | -----do | 196½ |
| 9.2-inch | -----do | 93½ |
| 7.5-inch | -----do | 60 |
| 6-inch | -----do | 31 |
| 4-inch | -----do | 10 |

The solution should be tested for alkalinity from time to time during the operation, and, if necessary, can be revived as described hereafter.

When removed from the gun the solution should be drawn off into wooden barrels or carboys, and can be employed again within a period of 48 hours, provided that the receptacles are closed and kept air-tight. When again required for use the solution will be tested for alkalinity. The retention of the deep-blue color of the solution after previous use may be accepted as a proof that it is still alkaline. In the event of the solution having lost its deep-blue color, sufficient ammonia liquor, 0.880, should be added to restore the color. Failing this, an entirely fresh solution must be prepared. This condition being fulfilled, the solution can be revived by adding: (1) One-half pound of ammonia liquor, 0.880, per gallon; (2) about 10 ounces of ammonia persulphate per gallon.

During the actual operation, if the solution should be found to act sluggishly, a small amount of ammonia persulphate may be added from time to time, always with the proviso that the solution must be kept strongly alkaline by the addition of ammonia liquor 0.880, when necessary.

As ammonia persulphate does not keep well in solution and is only effective in the presence of an excess of ammonia hydrate, care should be taken on the ground of economy to make up only sufficient at a time for actual requirements.

If several guns have to be decoppered, the same solution may be employed, provided that the conditions, as above stated, are complied with and that the solution is tested for alkalinity and revived as may be necessary when changing it from one gun to another.

GREAT BRITAIN

SHORT BROS.' AIRCRAFT MANUFACTURING PLANT

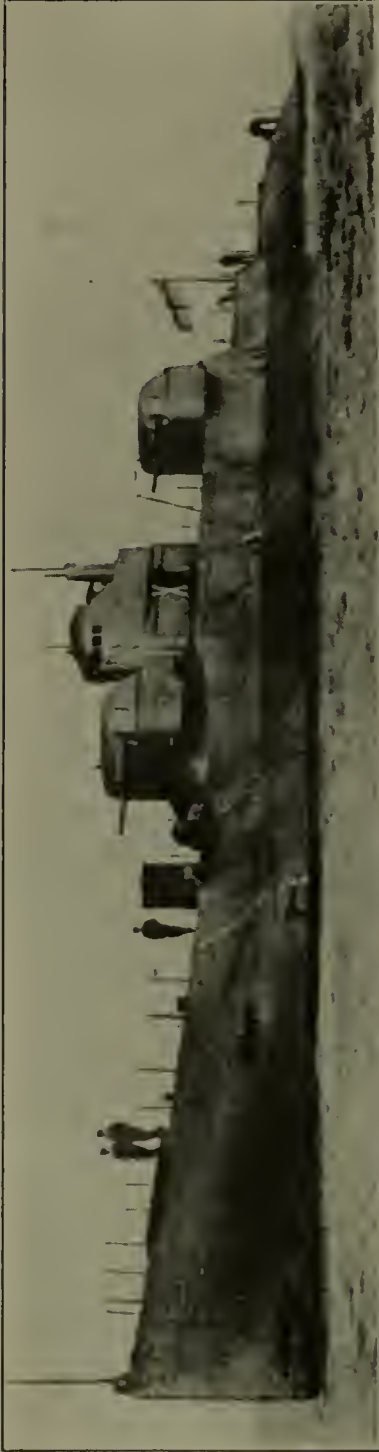
February, 1925

A visit was made to the aircraft manufacturing plant of Messrs. Short Bros. This plant is located at Rochester, on the River Medway, 34 miles southeast of London and within a few miles of the Chatham dockyard. It was established in 1913 and was greatly expanded during the war. The company at the present time is principally engaged in the construction of motor omnibus bodies, but a limited amount of experimental aviation construction is being carried on. About 1,500 men are employed, of which about 250 are engaged in aviation design and construction. The plant is well equipped for aircraft manufacturing purposes and could very quickly swing into aircraft construction on a fairly large scale.

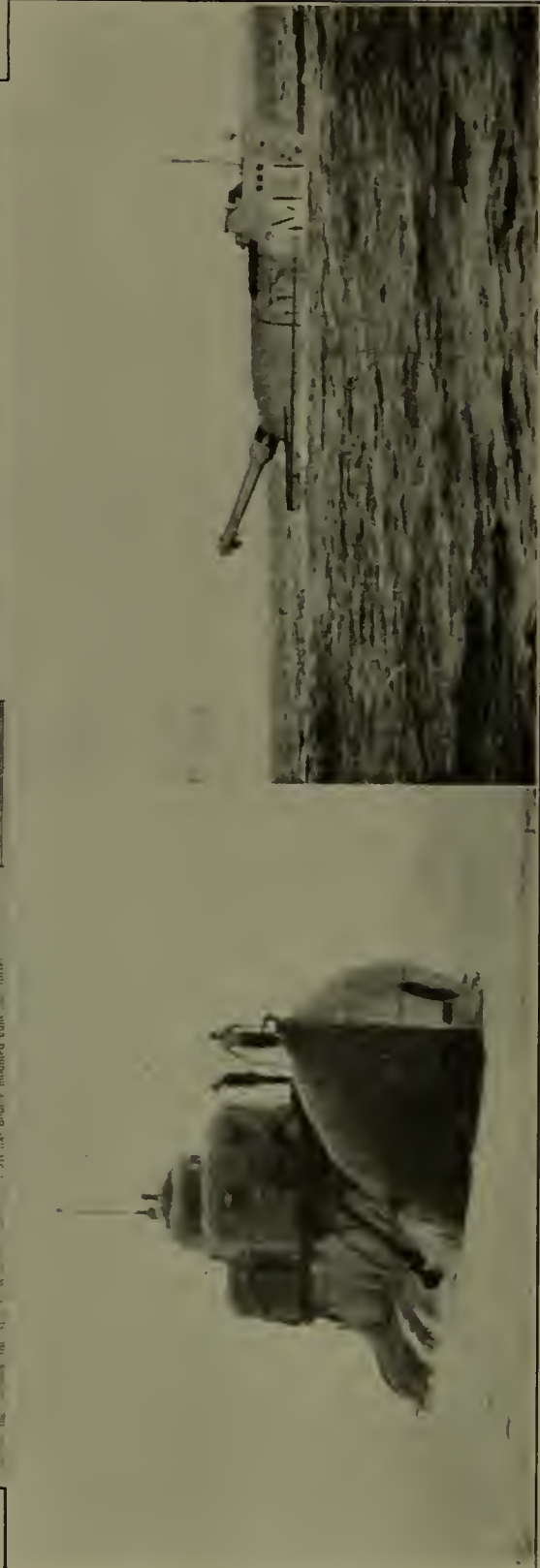


H. B. M. SUBMARINE L-53

The platform structure under the bow and stern guns trains with the gun so that when a gun is trained abeam the gun platform overhangs the superstructure by several feet



H. B. M. SUBMARINE X-1
 (Left) H. B. M. SUBMARINE X-1
 (Right) H. B. M. SUBMARINE X-1



H. B. M. SUBMARINE M-1
 Firing 12 inch gun

The primary purpose of the visit was to inspect the *F-5* all-metal hull, which was completed some several weeks ago. The *F-5*, with this hull, had preliminary flight tests but was brought back into the factory on account of small leakage around the keel at the step. The hull is along the general lines of the *F-5*, except the sponson effect has been produced by swinging the side out in a curve instead of having the angle where the sponson joins the main hull and the after section of the hull is elliptical instead of rectangular. Duralumin is used throughout. The general methods of construction are similar to those used in the fuselage of the *Springbok*, plans of which were submitted to the department by Mr. Short in 1922. The hull is made up of strips of duralumin plating of varying thickness. The plating is 20 inches wide and is bent around circumferentially. Fourteen-gauge plating is used on the bottom as far aft as the first step, and is also used to form the sponson. The plating on the side and over the top of the forward part of the hull and the plating abaft the first step is of varying thickness down to 20 gauge, depending upon the amount of local strength required. Joints are made by a single row of rivets spaced about one-half inch apart, with an extra offset rivet at each fourth space. Ordinary white-lead paint is put on the contact faces of the plates before they are riveted. No fabric or other material is used at joints and there is no beading. Mr. Short stated that experience had shown him that fabric was unnecessary and stated that he regarded its presence as an undesirable aid to corrosion.

To obtain great local strength in the extreme aft end of the boat, plates are reduced in width to about 12 inches, thus giving many overlaps. The circumferential ribs inside the hull are made up of duralumin channels and are formed to shape in a special rolling machine. These channels are spaced according to the width of the plates used on the hull, being about 18 inches apart until the after end of the hull is approached when they are brought in to about 11 inches. The depths of the channels vary according to the local strength desired. There are five interrupted longitudinals in the forward part of the hull, one extending along the keel line and two on each side. These longitudinals are spaced about 3 feet apart at the step position. Small interrupted longitudinals five in number, extend from the first to the second step. Due to the method of construction employed, no beading of plates is required except around the nose. The steps are an integral part of the hull construction. Instead of the usual *F-5* form of forward step, this metal hull has what might be called a fluted form of step with three rather flat concave arcs on each side. This fluting effect is carried well forward to the rise of the bow. Mr. Short claimed that this

was a scheme upon which he had obtained patents and stated that it gave increased planing efficiency and reduced weight where metal construction is used. The exact grounds of this claim could not be seen. The outside of the hull was painted up to the water line with two coats of Rylands' white yacht enamel. Above the water line the outside of the hull was covered with one coat of clear varnish. The inside of the hull was covered throughout with two coats of the above-named enamel. Mr. Short stated that the enamel used inside the hull weighed exactly 50 pounds, but could give no weight figures regarding the outer protective coats. He further stated that the weight of the completed hull, including the painting, was exactly the same as what he called the average new heavy *F-5* wooden hull. The general impression gained from viewing the metal hull was that the design and detail construction was excellent, but that the job had been a costly one. A further impression was gained that the construction was probably much stronger than necessary and out of proportion to the strength against landing shocks of the other parts of an ordinary *F-5*. The method of construction employed had obviated the necessity of using any cross bracing so that the interior of the hull gave a much more roomy appearance. The tanks, etc. were much more accessible. It was noted that no transverse bulkheads or partial bulkheads were built in, and when questioned on this subject Mr. Short stated that he proposed to put them in the next hulls. He further stated that he was very sure the hull had much greater strength than was necessary and felt confident that when the next one was built the weight could be safely reduced by approximately 300 pounds.

In connection with the use of enamel, varnish, etc., in protecting the *F-5* hull, a long discussion was had on the relative merits of the different methods of protecting duralumin against corrosion. Mr. Short stated that he had conducted a long series of experiments and had reached the conclusion that the ordinary yacht enamel was the best protection that he knew of at present. When questioned on the electrolytic or anodic process, he stated that whereas the Air Ministry claimed to have achieved splendid results with this process, that the samples furnished to him and the later samples which he treated at his own plant had not stood up at all well on his test in the River Medway, which river is practically sea water at Rochester. He stated that the samples treated by the anodic process pitted through the surface coating very quickly, and furthermore his test had convinced him that a protective coating was useless unless it covered all parts of the structure exposed to corrosion, for if it did not cover all parts corrosion was apparently greatly increased at those parts which were not protected. He added that he realized it would be possible to construct means of treating the entire boat

hull, but that as he did not consider the anodic process satisfactory, he did not intend to undergo the expense of such construction and preferred to use enamel. He was greatly interested in learning the results of the tests as set forth in United States Naval Aircraft Factory report 10M24-2 on "Corrosion of aluminum and duralumin," and in return for the information given promised to furnish full information in regard to the corrosion observed on the *F-5* hull after it got into service.

Messrs. Short Bros. completed the construction of a very small twin-engine monoplane flying boat with duralumin hull several months ago, and a chance was had to see this flying boat. The methods of construction of the hull are very similar to those employed in the *F-5* hull except that much lighter plating is used. The engines consist of two 1,000 CC Blackburnes mounted in the nacelles on the top of the wing. The flying boat was said to have a top speed of 60 miles and a low speed of 27 miles, but it is believed that this latter figure is very questionable.

The company is also engaged in the construction of three modified *Springboks*, which consist of improved design of the *Springbok* described in a previous report, the plans of which were shown to officials of the Bureau of Aeronautics by Mr. Short in 1922. While being tested at Martlesham one of the old *Springboks* was put into a spin at 3,000 feet and the pilot did not get it out of the spin, resulting in a complete crash, which killed him. No entirely satisfactory explanation of this crash has yet been heard, and Mr. Short was rather reticent on the subject. He was inclined to blame it on the pilot, but it was noted that all control surfaces had been greatly increased in size in the new design, which rather confirms the opinion expressed by some, that the old *Springbok* controls were entirely too small.

The company is also engaged in the overhaul of *D. II. 9A's* for the Air Ministry, and four of these craft were observed on the floor.

A special truck for the metal hull *F-5* has been designed and built, and this truck had the interesting feature that all four wheels were connected up to the long pulling shaft in such a way that they were cut around by the swinging of this shaft and were so mounted that they could be cut to 90° on either side. The wheels had a 6-inch face equipped with solid ribbed rubber tire, and although the truck when observed had on board a miscellaneous collection of heavy material, said to weigh 5 tons, one man could swing the wheels around by pulling on the end of the shaft. The advantages of such a truck are obvious, and it is possible that one has been designed already in the United States. Mr. Short stated that he was prepared to manufacture them at a cost of £400 each.

The Short company has recently gone to considerable expense in the building of a concrete model testing basin, 300 feet long by approximately 8 feet wide, with a towing car capable of giving a test speed of 14 knots. It was stated that this basin had been built in view of the plans of the company to proceed with the development of large flying boats, and, further, on account of the great loss of time and general unsatisfactory conditions involved in getting tests made at the National Physical Laboratory.

GREAT BRITAIN

GEORGE PARNALL CO. PLANT

A visit of inspection was made to the plant of George Parnall Co. (Ltd.) on March 18, 1925. This plant is located in Bristol, 118 miles west of London. The manufacturing part of the plant occupies three buildings, rather widely separated, and the flying field is located at a place called Yate, 11 miles outside the city. The company is engaged principally in the manufacture of furniture, and its actual aviation work at the present time is very limited, not over 150 men being employed in that branch of the work. The head of the firm is Mr. George Parnall, and the designer is a Mr. Bolas.

The only aviation work being carried on at the time of the visit was the construction of an experimental three-seater fleet spotting and reconnaissance amphibian and the construction of a small two-seater seaplane designed to be carried on a submarine. Both of these aircraft were on the secret list, and it was not possible to obtain a great amount of information regarding them. A partial "mock-up" of the fleet amphibian was seen. This "mock-up" indicated a three-seater biplane, equipped with Napier Lion engine, with pilot seat just forward of the leading edge, observer's seat about the center of the chord, and gunner's seat just abaft the trailing edge. The general appearance of the fuselage of the "mock-up" was somewhat similar to that of the Blackburn *Blackburn*. It was definitely ascertained that two range finders were to be mounted, one to be used by the pilot and one by the observer. It also appeared that two machine guns were to be married, one a fixed gun for the pilot's use and one free gun on scarf ring mount in the after cockpit. Information was gathered that the amphibian was also to have an alternative use as a bomber. No details as regards weights, dimensions, or performance could be obtained, nor could any information be gathered as to the exact details of the amphibian gear.

The small two-seater scout is fairly well along in assembly, and is a twin-float, tractor biplane, with Bristol Lucifer engine. It has folding wings with wing flaps on each wing extending the entire

length. These wing flaps drop well down in the folded position, so that the over-all frontage or span of the seaplane when folded is only 8 feet, although the wing chord, including the flap, is 4 feet. The total surface was said to be 180 square feet and the fuel capacity two hours with full throttle. No data regarding speed or other performance characteristics could be obtained. The floats were of concave V-bottom type, single step. That float construction looked very bad, indeed, and it is considered that this company has a great deal to learn in this matter. It was pointed out in the November, 1924, BULLETIN, in regard to the inspection of Felixstowe, that the Parnall *Plover*, fitted as a seaplane, was very unsatisfactory on account of its floats, fault being found both with the design and details of construction. It was gathered from a discussion with the designer that the submarine-type seaplane was built to be stowed in some form of a tank on the deck of one of the large submarines, but he professed ignorance as to the exact form of tank or the class of submarine on which it was to be placed. It was noted that each float had a metal roller mounted on a small bracket attached to and just abaft the step, and it was stated that these rollers were for running the seaplane out of the tank onto an apron, from which position it was to be hoisted over into the water by some type of folding davit. It might be pointed out here that it appeared that the rollers and their brackets would seriously interfere with the planing of the seaplane.

The subject of the defects of the *Plover*, as covered in the March, 1925, BULLETIN, was discussed at great length with the designer, and the impression was gathered that he considered the adverse reports as a result of combined inexperience and prejudice on the part of the service test pilots. His attitude, however, is not entirely supported by the Parnall company's test pilot, for a report from that person has been seen, in which report he stated that under certain conditions considerable oscillations were set up in the tail structure, which oscillations were transmitted to the entire airplane.

The company had just completed the construction of a second Parnall *Possum*, but unfortunately this airplane had been moved out to the flying field, and there was not sufficient time to visit that field. The *Possum* is an experimental type triplane with a Napier Lion engine inside the fuselage, driving by means of shafts and gearing two tractor propellers mounted on the leading edge of the middle wing. The original *Possum* was crashed at Martlesham Heath on test. This crash was stated to be due to faulty landing gear. From the information which has been gathered the *Possum* has a very low performance and is not regarded as being of any special interest, except with regard to the driving gear; and the following details of that driving gear were obtained: This engine

drives a propeller on each side of the cockpit attached to the middle plane. The gearing for driving the propellers is carried in a small steam-lined housing about 4 feet long and 2 feet 6 inches wide. A gear is attached to the propeller shaft of the Napier Lion engine and drives through beveled gears two shafts running out to the propellers on each side. These shafts are inclosed in an aluminum housing about 5 inches in diameter and were said to be floating in oil. An oil pipe is led from the engine to the gearing behind each propeller and lubricates the beveled gear there.

The general impression gained on the visit to the Parnall company is that it is a distinctly second-rate airplane company and shows little prospect of assuming any great importance under its present organization.

GREAT BRITAIN

HAWKER ENGINEERING CO. AVIATION PLANT

March, 1925

An inspection was made of the plant of the Hawker Engineering Co., which is located at Kingston-on-Thames about 8 miles southwest of London. It was built just prior to the beginning of the war by Mr. T. O. M. Sopwith and known as the Sopwith Aviation Co. During the war it was greatly expanded and became one of the largest aviation plants in England. After the war Mr. Sopwith released controlling interest and the firm became known as the Hawker Engineering Co. Part of the plant was then sold and is now being used for the manufacture of motor cars. After the death of Mr. Hawker, Mr. Sopwith again obtained control.

The plant is now employing 900 men, which is three times the number employed in August, 1923. It is engaged in the manufacture of airplanes of its own design and the overhaul of airplanes for the air force and in the manufacture of parts of airplanes for other firms. The only type in actual production at present is the *Woodcock*, which is a single-seater fighter equipped with Jupiter engine and especially designed for night-fighting work. Six airplanes of this type were on the floor of the assembly shop in various stages of assembly. Other airplanes on the floor of this shop were:

Four *D. H. 9A's* and two *Snipes* being reconstructed. In the experimental shop there was under construction a single-seater fighter equipped with direct-drive Condor engine and a modified edition of the *Woodcock* built of metal. The single-seater fighter had not progressed sufficiently far to enable one to see just what it would look like when completed, but Mr. Sopwith stated that it was a perfectly

straightforward type, with the exception that a new wing section was being used. This wing section was said to be one developed in the Göttingen wind tunnel slightly modified from some data obtained from Eiffel experiments. It was an unusually thick section, with rather a stubby entry and sweeping back in a double camber section, then taking a single and rather extreme camber. Mr. Sopwith stated that wind tunnel experiments had indicated that it was a remarkably good wing form and said the lift drift ratio was 25. One of the draftsmen subsequently stated the lift drift ratio to be 23, which seems a more likely figure. No data was obtained in regard to the expected performance of the single-seater fighter. The direct drive Condor is believed to give about 800 horsepower at 2,100 revolutions, and the plane is designed for a Reed duralumin type propeller of 9-foot diameter.

The metal airplane is an attempt on the part of the company to carry out a design which is reasonably cheap and lends itself to production methods. Fuselage members are of specially shaped steel tubing. The cross section is something about halfway between a round and a square section, in that the sides are fairly flat and the corners very rounded. Mr. Sopwith claims that with this section he has all the advantages of the round tubing as regards strength and yet has a section to which it is easy to attach fittings. The spars are also of steel tubing rolled from a round section into an extruded oblong section with corrugated sides and round ends. These spars come out slightly heavier than the built-up spar but can be produced quickly and cheaply. The ribs are stamped out from aluminum sheet, three operations being required. Each rib is one piece. The first operation consists of stamping out the general form and lightening holes; the second, of flanging the edges; and third, of cutting the holes for spars. The rib is reinforced where the spar passes through by a light steel plate which is riveted on. The fuselage is so designed that it can be erected in three sections, one section being the portion from the nose to the pilot's seat, the second section being from the pilot's seat to the tail assembly, and the third the tail assembly. The idea of this design is to permit the preliminary erection work to be carried on in some place other than the assembly floor, completely erected sections being brought to the assembly floor. Mild steel tested to 45 tons is used in the tubes, and the strength of this steel is reduced to 42½ tons by the rolling to form. No heat treatment is used.

While making an inspection of the drafting room Mr. Sopwith showed general arrangement plans for an airplane which he said he has proposed to build with air ministry support, but about which the air ministry has not yet reached a decision. If allowed to carry out the construction, it will be for the ultimate purpose of competing

in this year's Schneider cup race as a seaplane, and hence is probably of considerable interest to the Bureau of Aeronautics. No predicted performance data could be obtained, but the following information was gathered from the drawing board:

The design is a single-strut biplane-type rectangular fuselage, fairing into a section similar to the Curtiss racing type at the nose. The engine is direct-drive Condor, equipped with a 9-foot Reed propeller. The following are the dimensions: Span of upper wing, 25 feet; span of lower wing, 21 feet 6 inches; length over all, 22 feet 6 inches; height over all, 9 feet 3 inches. There is no dihedral. The general appearance of the airplane viewed from ahead is remarkably clean. The wing section is of the type similar to that described in the earlier part of this report as being fitted on the Condor single-seater fighter. The construction is of the ordinary wood and wire type.

The company has just completed an experimental two-seater fighter with Condor engine, but this airplane was not at the factory, as it had been shipped for test. No details of its particular performance could be obtained.

GREAT BRITAIN

COLONIAL AIRSHIP SERVICE

February, 1925

It has been learned that the Airship Guarantee Co. have revived in a modified form the "Burney scheme" for a political-commercial airship line to link up New Zealand and Australia with Great Britain. This scheme was approved by the former Baldwin government and rejected by the MacDonald government, which, instead, placed a contract with Burney (Vickers) for one airship.

In its present form the scheme is largely based on the desires of the Colonial Office. The governments of Egypt and India are understood to have frankly stated that no subsidy or other financial assistance may be counted on as coming from them. Ceylon, New Zealand, and Australia are understood to have replied that they would provide necessary bases and contribute toward a subsidy provided the British Government gave more.

The scheme, as outlined by the Airship Guarantee Co., and submitted to the Colonial Office and the Admiralty for consideration in connection with the estimates, is understood to be opposed by the Treasury as too costly and by the Air Ministry as premature. The route proposed avoids Egypt and India and goes to London, Bagdad, Ceylon, Perth, and Wellington in nearly equal distance stages. The

worst lift conditions are at Bagdad, where high temperatures are usual, and the worst weather is at Colombo in the monsoon season.

The following notes have been prepared on the capability of the 5,000,000 cubic foot airship operating on the above route:

The assumed full speed of the ship using all four engines (total 4,400 horsepower), has been taken as 85 miles per hour, while it is intended to operate the ship so that the hourly distance made good is 68 miles per hour. In still air this can be achieved using only two engines (2,200 horsepower), but a sufficiency of fuel is carried to allow a third engine (1,100 horsepower) being used over the whole route, in which case the 68 miles per hour time-table can be kept to, providing the head wind over the whole course does not exceed 10 miles per hour.

[Speed of airship, 68 miles per hour]

| | Flying distance in land miles | Time | |
|--------------------------|--|-------|------|
| | | Hours | Days |
| London to Bagdad..... | 2,970 | 43.5 | 1.85 |
| Bagdad to Colombo..... | 2,760 | 40.6 | 1.69 |
| Colombo to Perth..... | 3,530 | 52.0 | 2.16 |
| Perth to Wellington..... | 3,370 | 49.5 | 2.06 |

GREAT BRITAIN

NOTES ON MEDITERRANEAN POLICY

February, 1925

(From the Maltese press)

With further reference to the redistribution plans of the British Navy, the following additional information is of interest:

"The second submarine flotilla and attendant ships arrived here yesterday from Gibraltar and England, thus bringing to completion the scheme of fleet redistribution, by which the strength of the Mediterranean Fleet has been fully doubled, at the expense of the Atlantic Fleet, and which renders the fleet based on Malta once more the main seagoing British Fleet.

"The second submarine flotilla is composed of six vessels of the L type—*L-52*, *L-53*, *L-54*, *L-56*, *L-69*, and *L-71*. The flotilla is commanded by Capt. R. B. Ramsay (Captain S.), in the depot ship *Lucia*, with the *Adamant*, Commander F. H. Taylor, D. S. O., as tender. This group of submarines is the latest of the oil-engined type for surface propulsion to be completed, and they are all modern vessels, each of which carries two 4-inch guns and six torpedo tubes,

as compared with one 4-inch gun and four tubes in the earlier submarines of the L class. This is the first time that a flotilla of submarines is attached to the Mediterranean Fleet. It is true that until the outbreak of war Malta had two or three underwater craft, but not a regularly organized flotilla, as the one which arrived here yesterday to become part and parcel of the British Fleet. Moreover, the two or three vessels which were here before belonged to the very earliest B class, which even for those days were regarded as obsolete.

“The Mediterranean Fleet is now complete in every detail and is reported to be the most formidable armada that has ever been maintained in the Middle Sea.”

It is announced that the flotilla leader *Keppel*, built by Thornycroft, finished her trials on March 2, 1925, making an average speed of a little over 36 knots, with a power exceeding 40,000. The next few weeks will be spent in taking down the machinery for examination, after which the ship will be commissioned for service on the Mediterranean station, as relief to the *Stuart*, as leader of the third destroyer flotilla.

Under the heading of “Strategy and politics” Sir Herbert Russell, the well-known war correspondent, and who passed through Malta with the Prince of Wales on his Indian tour, contributes the following article to the Naval and Military Record:

“With the arrival of the second submarine flotilla at Malta early in February the reconstitution of the Mediterranean Fleet reached completion. Measured by total tonnage and collective gunfire, this is now the most formidable armada in the world. Apart from that purely war-time concentration, the Grand Fleet, it is likewise the most powerful naval force ever grouped in one unified command. The question of what particular politic principle has dictated this redistribution of the British Navy is one of first-class interest. I use the term ‘politic’ in order to differentiate between strategic purpose. The strategic advantage of the position taken up by the striking preponderance of our sea power is self-evident. The Mediterranean Fleet is stationed in what, in military analogy, would be the interior lines. It can dominate the great sea road between Gibraltar to Port Said. It can bar the entrance betwixt Pompey’s Pillars to any conceivable enemy. It can make the Suez Canal as impracticable to hostile passage as was the Kiel Canal before the armistice. Indeed, it is true to say that no more effective scheme for the war-ready disposal of the British Navy could be devised than that which has now materialized.

"So much, then, for the strategic side. But the politic side opens quite another vista. The interdependence between politics and strategy is as the relationship between cause and effect. This truism brings us to consideration of what political causes can justify the strategic effect of the present distribution of the British Navy. The reason why, at the dawn of the present century, the Mediterranean Fleet was maintained as the premier British sea command is a simple and obvious one. France then remained the potential objective of all our naval plans. The submarine was still regarded as a freak, the aircraft was unborn, and the mine looked upon merely as a weapon of very localized defense. In fact, the capital ship remained only challenged in her supremacy by the destroyer. I can not recall that that blessed word 'visibility' had been coined, and the smoke screen had yet to be demonstrated as superior to the Chinese stink pot. In fact, men thought of naval warfare in terms of a decisive fleet action as completely as they did in Nelson's day.

"The Channel Fleet and the reserve fleet were deemed adequate protection to the Narrow Seas, so all available power beyond the composition of those forces was bestowed in the Mediterranean. The entente and the first ominous shadows of the German menace came much about the same time; so did the alliance with Japan. A great reshuffling of our sea power marked this epoch. But the politic cause of the strategic effort was throughout as clear as daylight. The new home fleet, which everybody tacitly understood was the new North Sea Fleet, became the premier British sea command, the great backbone of the ultimate Grand Fleet.

"In a slightly lesser degree we are doing to-day in the Mediterranean what we were doing before the war in the North Sea. Last spring the combined maneuvers of the Atlantic and Mediterranean Fleets were not held in the littoral of the former, but of the latter. This year the same course is being pursued. The public is not vouchsafed any knowledge of the 'general idea' of fleet exercises these days, as in the period of the old blue side and red side maneuvers. Therefore, we are left to guess at the strategical objective of these combined operations. One fact alone stands out clear from the realm of conjecture. The exercises have reference to hypothetical situations in the Mediterranean zone.

"The question of the possible political influence of naval changes is a matter for the cabinet. The Admiralty are charged with the duty of making the fullest provision with the means at their command for insuring the defense of the Empire. In other words, their business lies on the strategical side. The end of the war left us with a blank map so far as naval zones are concerned. The Admiralty were frankly puzzled as to how to best distribute the forces remaining in full commission. When the Grand Fleet was disbanded.

and the Atlantic Fleet recreated as the premier sea command, it was announced that this arrangement was only likely to be temporary. Quite early after the restoration of peace the rivalry between the United States and Japan assumed an aspect which it was impossible for this country to ignore. Lord Jellicoe, as the result of a world tour, especially undertaken to investigate strategical problems, recommended that the best use to make of our postwar strength was to create a Pacific Battle Fleet. The advice was unquestionably sound if we admit that the traditional principle of British naval policy is sound. But it is quite certain that a war-weary nation would not have tolerated a policy which savored of fresh hostile preparations. So Lord Jellicoe's proposals were never published, but incidentally they formed the genesis of the great Singapore scheme.

"That the cabinet approved the restoration of the Mediterranean Fleet to its former preeminence goes without saying. They undoubtedly weighed the politic side and concluded that, in this case, effect need not wait upon cause. There is no visible prospect of any European situation which might be materially influenced by the difference between the bulk of British striking force massed in the Mediterranean and the bulk of it retained in home waters. It is ridiculous to premise the possibility of a bolt from the blue when Vulcan has no material for forging it with. The strengthening of the Mediterranean Fleet was certainly not a step directed against France. Equally certain, neither was it directed against Italy. Eliminating these two, what remains in the category of European naval powers which could be dignified by the term of a definite objective?

"The reorganization of the Mediterranean Fleet has not had the faintest appreciable political result. It has been accepted as quite a matter of course, by the two powers directly concerned. Of course, the war brought to them both a new orientation toward British sea power. Perfide Albion is as dead as mutton, and the white ensign is the symbol for freedom of the seas. The Mediterranean is the great blue road to the richest realms of the British Empire, and the British Fleet is doing nothing to outrage European susceptibilities by patrolling it in overwhelming strength. The British Fleet spent a lot of money in Naples and other Italian ports last summer, and these places are all for seeing it return in still more overwhelming strength.

"So it was quite easy for the cabinet to reconcile the politic with the strategic aspect of the proposed reorganization. But there lies a deeper question at the back of the change. It was not designed by way of response to any visible objective. It was not directed against France, which views it with profound indifference. It was

not directed against Italy, which rather welcomes it. Then what is the *raison d'être* of it?

"The answer does not call for any particular sagacity to divine. Since we manifestly can not have a Pacific Fleet—if for no other reason than that we do not possess any Pacific Fleet base—the next best thing is to have a fleet as near to the Pacific as conditions admit. The reconstitution of the Mediterranean Fleet might have waited until the great Singapore base was approaching completion. But who shall say that the political atmosphere will be as completely favorable to such a change in the balance of strength then as it is now? That change has been carried out without a murmur of foreign protest. It is now a normal condition of British naval distribution.

"Long views are the very quintessence of sound Admiralty governance. There is no real definite reason at the present day for increasing the Mediterranean Fleet at the expense of the home waters' force. It is not a matter of insuring the safety of the Mediterranean trade route, because there is no sort of menace to that route. If there were, in this age of high mobility, it could be as effectively dealt with by a fleet starting away from the channel ports as by a fleet permanently based upon Malta. War means preparation for war, and this can not be carried out secretly upon a scale which would render it possible to suddenly paralyze commerce on a 3,000-mile trade route. Our prestige will gain nothing—at any rate in commercial value—from the increase in the Mediterranean Fleet, because that fleet, prior to its increase, was much superior in fighting power to all the navies in the Middle Sea combined. There is an old-time legend that training in a foreign-service squadron is more efficient than in a home-service squadron. But I question whether the Mediterranean Fleet, let us say in Dragomesti Bay, is going to teach its men more—or, indeed, quite so much—as the Atlantic Fleet in Scottish waters. On purely economic grounds it would be preferable to maintain the bulk of our big ships within easy reach of their home dockyards than in foreign waters.

"Strategically, the redistribution of our naval strength is justified by long views: politically, it has been made at such an opportune time that it has not raised a single European reproach. I have already said that the two aspects are interdependent. But very rarely in history can they have been made to harmonize as in this case."

[From the Italian press]

British Maneuvers in the Mediterranean beginning March 23

The following appeared in the *Messaggero* of March 5, 1925, without any comment. It is a well-known fact that Italy resents England's repeated maneuvers in the Mediterranean. These maneuvers before the war used to take place off the coast of Portugal.

"Information is received from London that the British Atlantic and Mediterranean Fleets will start maneuvers on March 23 off the island of Majorea. Maneuvers will finish on March 30. Two of the British ships will then go to Bona and Tripoli. The Atlantic Fleet will return to its bases on April 6."

GREAT BRITAIN

AVIATION NOTES

Development of large type seaplanes by Air Ministry at request of Admiralty

It has been learned that the Air Ministry recently issued general specifications covering a large type of flying boat, and it is understood that these specifications were only issued after a considerable amount of pressure had been brought to bear by the Admiralty, the Air Ministry contending that it could not afford the cost of development of such type.

A contract for one of the large flying boats has been let to Messrs. Short Bros., of Rochester. It is understood that the hull of this boat will be built of duralumin and that it will have three Condor engines. The contract for two of these boats has been let with the Blackburn Aeroplane & Motor Co. of Leeds. The hull of one of these boats will be built of duralumin and the hull of the other of wood. The boats being built by the Blackburn Co. will also have three Condors and they will all be tractors. The engine arrangement in the Short boat has not been ascertained.

The manufacturers refer to the new flying boats as the "Singapore base type." It is understood that the Admiralty is particularly anxious to keep the development of this type secret.

Difficulties experienced with radial engined airplanes in night-flying operations

Upon the occasion of a recent visit to an air force mess it was learned that a considerable amount of experimental night flying had been recently carried on at that station and that there is a

considerable feeling of depression in the air force over the experience with radial engined airplanes on these night flights. It appears that the exhaust flames from the engine have a much greater blinding effect on the pilot than was anticipated. This was accentuated by the fact that all single-seater fighters are very close coupled, and the pilot is therefore very close in behind the engine. The further difficulty was experienced with airplanes equipped with the Jaguar in that that engine does not throttle well and is continually "spitting" when brought down below 900 revolutions; therefore this "spitting" occurs just at the time when the pilot wishes his engine to be running at an idling speed on approaching the landing and completely blinds him in so far as making the landing is concerned.

During a recent visit to the Hawker Engineering Co. a *Woodcock*, which is designed primarily for night flying, was observed to have a Jupiter engine equipped with the new experimental type of exhaust ring, obviously to eliminate the flash difficulties. The short exhaust manifolds lead into this ring at an angle so that the gases took up a circular motion around the ring, and there were two outlets at the bottom of the ring. The ring itself had a circular cross section of about 6 inches in diameter. The problem of eliminating the difficulties in the *Jaguar* is more complicated on account of the staggered cylinder arrangement. In so far as could be ascertained no successful exhaust ring for that engine has been developed.

Statement by Secretary of State for Air in regard to accidents during the past two years

The following is quoted from Parliamentary Debates, House of Commons, February 26, 1925:

"I imagine from what my two honorable friends have said that they will wish me to address myself to two questions. First, is the number of accidents now abnormal; and, second, whatever may be the number of accidents, normal or abnormal, are we taking every possible care to restrict their number and seriousness? Let me begin with the question of numbers. The honorable and gallant member for Leith Burghs (Capt. W. Benn) said quite rightly that we must judge the gravity of the question of accidents not by their absolute number but by their relativity to flying hours. Judged by that test, the statistics are not unsatisfactory on the whole. During the last 18 months, and particularly during the last 12 months, we have been greatly extending the strength of the air force, and therefore, in the nature of things, the flying hours have greatly in-

creased, and although the absolute number of accidents may have risen to a small extent, yet proportionately to flying hours the number is still going down. Let me give the house some figures. I will take the figures for two years to show that the improvement is continuous over a comparatively long period. As far as the absolute numbers of accidents are concerned, there was an increase in 1924 as compared with 1923. The increase in the number of deaths was, moreover, greater than the increase in the number of fatal accidents. The number of deaths was 72 and the number of fatal accidents 49. But when they come to what is much more important, the proportion of these accidents to flying hours, they will find a much more satisfactory situation. In 1923 there was an improvement in relation to flying hours of 47 per cent over 1922, and in 1924, although the improvement was not as conspicuous as it was in 1923, it was yet 7 per cent better than it was in 1923. The house therefore will see that if you take into account the fact that the air force is considerably greater than it was two years ago, and that the number of flying hours has greatly increased, the proportion of fatal flying accidents during the last two years has steadily gone down."

Royal Air Force apprentices

The following article appeared in the British press:

"The Air Ministry announces that in continuation of the policy of training aircraft apprentices in skilled trades of the Royal Air Force, two examinations for the entry in September, 1925, of 700 suitable boys will be held within the next few months."

[From a consular report]

Probable selection of Karachi as first base in proposed England to India airship service

The recent arrival in Karachi of Group Captain Fellowes, director of airship development, Flight Lieut. S. Nixon, and Mr. H. H. Lewis-Dale, of the air ministry, to choose a base in India for experimental flights in connection with the proposed England to India airship service, has roused the local business community in an endeavor to have Karachi selected as that base.

The project has been discussed between the above officials and the local chamber of commerce, and the latter body anticipating the claims that Bombay would put forth in her own behalf prepared and submitted to Group Captain Fellowes a list of the advantages that Karachi enjoyed as an airship base as compared with other

cities of India and with Bombay in particular. Briefly stated these advantages are as follows:

Karachi is the nearest Indian port to Europe and is therefore best suited geographically to become the main terminus of airplanes and airships flying from any other part of the world to western India.

Passengers and goods could be conveniently carried from Karachi to other centers in India by means of subsidiary air services.

Karachi lies on the direct route from Europe to eastern India, the Far East, and Australia, and up to the present time Karachi has been included in the routes of all airplanes flying across India. Aviators flying eastward have almost invariably made Karachi their first landing place in this country.

The climate of Karachi is ideal for an air port. Lying on the edge of the Sind desert there is practically no wet season, and a base establishment here would not be subject to disorganization resulting during the monsoon period from hurricanes and heavy rains, as might easily be the case in Bombay. Nor would the evil effects on equipment of dust, sand, rust, and excessive heat be greater in Karachi than in other parts of India.

The country surrounding Karachi for miles is flat, and in the event of difficulty in locating the established airdrome a successful landing might easily be effected elsewhere close to the city.

There is already established at Karachi a large and fully organized aircraft depot operated by the army, with an excellent airdrome.

Although it is admitted that Bombay at present offers the best facilities for the distribution of aerial passengers and cargo by rail and sea, Karachi certainly is superior as an aerial port and for the distribution of passengers and cargo by subsidiary aerial services.

In view of the importance that aerial navigation is sure to play in the future commerce of India, the advantages that any city can offer as a suitable base for commercial airship service must be of interest to any country which may contemplate the establishment of commercial aerial routes.

Should Karachi be selected as the base for the experimental flights between England and India, which it is expected will commence in 1927, mooring masts and buildings would be erected by the British Government to serve as an aerial harbor. It is probable that the site selected for this harbor would be in the vicinity of the present airdrome of the Royal Air Force situated some 7 miles northeast of the city.

Considering the value that such a project would be to the future of Karachi, it is little wonder that the question is regarded by the local commercial community as of primary importance.

Group Captain Fellowes, in his interviews with the chamber of commerce, stated that he regarded Karachi as a more suitable air-ship base than Bombay and would make his recommendations to the Government accordingly. He also stated that he had little doubt that Karachi would eventually be selected by the Government.

ITALY

MISCELLANEOUS NOTES

At 10 a. m. on Sunday, February 10, 1925, the keel of the 10,000-ton light cruiser *Trento* was laid at the Cantiere Orlando at Leghorn.

Aviation

It has been ascertained that the Dornier Co., at Marina di Pisa is building two experimental seaplanes for the Italian Government for use on board submarines. The hull of one of these seaplanes is now over 50 per cent complete, and the construction of the wings is progressing rapidly.

These seaplanes are to be monoplane flying boats, equipped with LeRhône 80-horsepower engines. They will be similar to the Dornier-Libele type, except slightly larger. No predicted performance data has been ascertained as yet.

These seaplanes are to be stowed in a tank 7 meters long by 2 meters in diameter. For storing in the tank the wings are detached and the engine mounting is swung down forward to a position just above the boat hull. This is accomplished by detaching the forward engine bed struts and then swing the whole engine bed forward and down. It is required that the process of preparing for stowing or reassembling for flight must not take longer than three minutes.

No information is available as to whether or not a tank is being constructed nor on what submarine the installation will be tested.

Colonel Lapolla, traffic manager of the Italian Aero-Express Co., stated in an interview with this office that his company had decided to employ the Savoia S-55 plane for operating this line, and had ordered about six of these machines. The Italian Government had placed an order for an experimental squadron of S-55 torpedo seaplanes (12 machines) with the Savoia company, but in view of the fact that the line should be started in July next the commissariat had authorized the constructing firm to give precedence to the Italian

Aero-Express Co.'s order. These machines will be modified for carrying 12 passengers (six in each fuselage), luggage, and mail. They will be equipped with two Lorraine 400-horsepower engines.

This plane recently passed a series of tests at Sesto Calende, on Lake Maggiore, and then Venice and Spezia, in order to determine the behavior of the machine on the open sea. The results of the official tests at Spezia (January 1-10) are given hereunder: Weight, empty, 4,046 kilograms, 8,901.2 pounds; fully loaded, 5,626 kilograms, 12,377.2 pounds; useful load, 1,580 kilograms, 3,476 pounds; (12 passengers, at 100 kilograms and 380 kilograms mail). Velocity, maximum, 191.760 kilogram-hours, 118.73 miles per hour; velocity, minimum, 100.525 kilogram-hours, 62.44 miles per hour. Take-off, 43 seconds. Climb to 1,000 meters (3,280 feet), 10 minutes, 10 seconds; 2,000 meters (6,560 feet), 22 minutes; 3,000 meters (13,120 feet), 45 minutes.

JAPAN

PERSONNEL OF NAVY

The below-mentioned information was received from the Japanese Navy Department. The list shows number of Japanese naval officers and men in active service and reserve on January 1, 1925:

Officers

| | Active service | First and second reserve |
|----------------------------|----------------|--------------------------|
| Executive..... | 2,688 | 777 |
| Engineer..... | 992 | 239 |
| Surgeon..... | 397 | 214 |
| Apothecary..... | 22 | 13 |
| Paymaster..... | 388 | 178 |
| Constructors..... | 59 | 25 |
| Constructor, engineer..... | 31 | 10 |
| Ordnance..... | 130 | 24 |
| Hydrographic..... | 5 | 1 |
| Total..... | 4,712 | 1,481 |

Special and warrant officers

| | Special officers | Warrant officers | Special officers | Warrant officers |
|-----------------|------------------|------------------|------------------|------------------|
| Executive..... | 522 | 693 | 303 | 204 |
| Engineer..... | 434 | 603 | 202 | 111 |
| Musician..... | 8 | 11 | 6 | 4 |
| Carpenter..... | 37 | 51 | 40 | 16 |
| Pharmacist..... | 16 | 42 | 26 | 21 |
| Paymaster..... | 66 | 125 | 51 | 41 |
| Total..... | 1,083 | 1,525 | 628 | 397 |

Petty officers and men

| | Petty officers | Men | Petty officers | Men |
|----------------|----------------|--------|----------------|--------|
| Seamen..... | 8,386 | 26,134 | 6,007 | 13,812 |
| Stokers..... | 5,634 | 17,781 | 3,961 | 9,042 |
| Musician..... | 111 | 166 | 65 | 17 |
| Carpenter..... | 325 | 676 | 165 | 382 |
| Sick bay..... | 405 | 1,012 | 166 | 386 |
| Paymaster..... | 990 | 2,251 | 570 | 1,226 |
| Total..... | 15,851 | 48,020 | 10,934 | 24,865 |

NOTE.—In comparison with this office report No. 314, 903-100, of Oct. 17, 1924, this list shows increases and decreases in active service personnel as follows: Increases—Officers, 325; special officers, 204; warrant officers, 36; petty officers, 599. Decreases: Men, 2,132.

JAPAN

SCRAPPING OF SHIPS IN ACCORDANCE WITH WASHINGTON TREATY

February, 1925

The following information was received from the Japanese Navy Department on the above subject:

| Names | Disposition | Summary of disposition |
|-----------------|----------------------|--|
| Aki..... | Sunk by gunfire..... | Sunk off Tokyo-wan Sept. 7, 1924. |
| Satsuma..... | do..... | Sunk off Tokyo-wan Sept. 2, 1924. |
| Hizen..... | do..... | Sunk off Bungo Channel, July 25, 1924. |
| Ikoma..... | Dismantled..... | Sold to Mitsubishi Dockyard, Nagasaki, and completely dismantled on Nov. 13, 1924. |
| Ibuki..... | do..... | Sold to Kawasaki Dockyard and completely dismantled on Dec. 9, 1924. |
| Kashima..... | do..... | Sold to Mitsubishi Dockyard, Nagasaki, and completely dismantled on Nov. 24, 1924. |
| Kurama..... | do..... | Sold to Kobe Steel Works and completely dismantled Jan. 19, 1925. |
| Katori..... | do..... | Completely dismantled at the Maidzuru yard on Jan. 29, 1925. |
| Tosa..... | Sunk..... | Sunk in Bungo Channel Feb. 9, 1925. |
| Amagi..... | Dismantled..... | Completely dismantled at the Yokosuka naval station on July 15, 1924. |
| Settsu..... | | Preserved for use in connection with target practice, in accordance with C No. 2 of section 2 of Washington treaty. First period of scrapping completed at Kure Feb. 16, 1924. |
| Asahi..... | | Retained in noncombatant state in accordance with part 2, 111 (b) of Washington treaty. Work completed at Yokosuka on Jan. 15, 1924. |
| Shikishima..... | | Retained in noncombatant state, in accordance with part 2, 111 (b), of Washington treaty. Work completed at Sasabo Dec. 5, 1923. |
| Mikasa..... | | Reduced to noncombatant state and to be preserved as a memorial. Work completed at Yokosuka Jan. 10, 1923. |

Statement by Admiral Takarabe on disarmament

The following is an interview given by Admiral Takarabe, Minister of the Navy, on disarmament:

"We scrapped the largest and best battleship, the *Tosa*, as originally planned at 7 o'clock Monday morning, February 9, and we have now scrapped all the battleships doomed by the treaty with the exception of the *Mikasa*, the flagship of Admiral Togo in the Russo-Japanese war, which we retained with the consent of the signatory powers in memory of the event in which he took a leading part. I wish to express how very grateful we are for the sym-

thetic attitude shown to us by the various nations in permitting us to preserve this ship which is dear to our hearts and which will remain as a monument of their friendly sympathy."

When asked his opinion concerning the benefits of the Washington conference, Admiral Takarabe said:

"The benefits of the treaty have been apparent to everyone and have been numerous. Speaking from the economic standpoint alone, they are simply tremendous; so much money which would otherwise have been expended in an armament race is now being used for constructive purposes. The earthquake, the heavy damage caused by it, the blow even though temporary to the nation's business, the great pressure on the nation's resources—just suppose that we had an armament race to keep up under such circumstances. Concerning the moral effect of the treaty—one sentence will suffice to express my opinion. It has effectively mollified the murderous atmosphere which lingered after the great war."

Questioned concerning the advisability of another disarmament conference, Admiral Takarabe replied:

"The answer is self-evident; there is no reason why Japan should have anything to say against it. Given fair ratios, sufficient guarantees for the requirements of defense, and observance of the proper methods of procedure, we are ready to embrace wholeheartedly any proposition intended to eliminate friction between nations and stabilize the general situation.

"There is, however, a very important point to be considered in connection with a second disarmament conference. I believe that the preparation for a second conference should require much greater caution than was taken with regard to the first one, because if the next conference should end in failure, from no matter what cause, the evil atmosphere which will necessarily develop will certainly go far toward destroying the beneficial effect of the first conference.

"The Washington conference produced a spell over the world which we now feel, binding nations together in a spirit of harmony and cooperation, but I dread the certainty that if the second conference should end in failure the accomplishments of the first will necessarily painfully suffer. I therefore venture to propose that if a second conference be convoked at all, all possible cause of rupture should be carefully studied beforehand and eliminated so that the powers may formally embark on the program among themselves.

"I am rather concerned over this position. With a thorough understanding the nations of the world are now carrying the treasure which was the product of the Washington conference; they are co-operating for fear of breaking it; but, if this common treasure should break, whether through anyone's fault or not, there will be nothing very powerful to bind them together any longer. Please don't mis-

understand me when I say that we must be very careful indeed. I am ready to approve any proposition to promote peace on earth and good will among men. I only preach the necessity of caution for fear of destroying what has already been accomplished."

JAPAN

POLITICAL ESTIMATE

February 1, 1925

[Prepared by Military Intelligence Division, U. S. Army]

1. GOVERNMENT ORGANIZATION AND METHOD OF OPERATION

A. FORM OF GOVERNMENT—EXTENT OF SUFFRAGE

Though Japan is classed as a constitutional monarchy, this term has not the usual meaning of parliamentary government under a limited monarchy, for public opinion only slightly determines the policy of state.

Traditionally the imperial family traces its origin to the gods and its first Emperor was Jimmu Tonne, who, as half god, first ruled Japan in 660 B. C. From Jimmu Tonne, in a so-called "direct line," the present Emperor is descended. The mythological traditions of the past materially influence conditions to-day, although such influences tend to diminish as the country becomes more occidentalized.

Great feudal lords have repeatedly overrun Japan and really ruled, yet respected and held aloft, their Emperor. Traditions of divine imperial right and the influences of a group surrounding the throne, chiefly of the military oligarchy, have mainly dominated until recently the government policies.

In 1860 there were several hundred feudal States in Japan, each with very closely prescribed limitations. The heads of these States resided in Tokyo most of the time. For 250 years the head of the Tokugawa clan had been the most powerful lord. During this period Japan had been closed to foreigners, but Admiral Perry forced the opening of a few Japanese ports in the treaty of 1854, and with this the established system was so shaken that in 1867 the boy Emperor Meiji was placed on the throne as a real ruler. The feudal system was abolished and the heads were given titles of nobility. They, together with the commoners appointed from time to time by imperial decree, are the peers of to-day.

Under instructions from the Emperor, Prince Ito made elaborate studies of constitutional governments abroad and selected the Prussian constitution as most applicable as a model for Japan. The constitution was promulgated in 1889. Eight years before the Emperor had directed his people to prepare for the promulgation.

This is one of the few instances in history where a ruler has granted a constitution voluntarily.

Political parties began with a "Liberal Party" established in 1881.

The voters, limited to only a few hundred thousands in 1882, have increased to nearly 3,000,000. About one-fifth of the grown male population of Japan has the right to vote to-day.

Prefectural assemblies were established in 1880 and the right of local self-government was extended to cities, towns, and villages in 1889.

The Emperor Meiji died in 1912 and the present Emperor became ruler. However, owing to ill health, he no longer performs the duties of his position. The Crown Prince Hirohito was appointed Regent, November 25, 1921.

For a brief Japanese history see the "Political survey of Japan," on file in G-2, Far Eastern subsection. For a more extensive history of Japan see "History of Japan," by Brinkley, in the G-2 or War College libraries.

B. ORGANIZATION OF GOVERNMENT

(1) THE GENERAL GOVERNMENT

(a) *Branches*

Executive—The Emperor.—All executive, legislative, and judicial powers are vested in the Emperor. The constitution provides that "the Emperor is the head of the Empire, combining in himself the rights of sovereignty." Under the constitution, the Emperor promulgates imperial ordinances which must be submitted to the Diet at the next session, and these become inoperative unless approved. He thus exercises legislative powers in concert with the Imperial Diet. He sanctions laws and orders their promulgation; summons, prorogues, or dissolves the two houses; fixes the salaries of civil officials and army and navy officers; declares war, makes peace, concludes treaties, confers titles of nobility and other general honors, and grants pardons and amnesty. The Emperor stands much in relation of a father to his children, sympathy and love instead of abuse of authority being given and expected. The Emperor's actual political influence depends upon his force and personality. Under the present regency the Crown Prince Hirohito is Emperor in everything except name.

Since the Emperor has the power to declare war, make peace, and conclude treaties, all other government agencies are merely advisory in the execution of these functions. Usually the Emperor acts upon some direct recommendation by the cabinet in the declaration

of war and upon a petition by the military or naval staffs for authority in the conduct of war. Though authority for expenditure of funds exceeding in amount the latest budget theoretically must be approved by Parliament, the power of the Emperor to dissolve a disapproving house, call for new elections and to promulgate emergency ordinances in the interim renders certain the financial backing by the government of a war.

The cabinet.—The cabinet consists of a Premier and 10 ministers who are heads of the following departments: Foreign Affairs, Home Affairs, Finance, War, Navy, Justice, Education, Agriculture and Commerce, Railways and Communications. The cabinet is delegated executive functions pertaining to these departments, the administration of government affairs except such matters as are delegated to the army and navy staffs, and the concurrent power of initiating projects of law with the Privy Council and Imperial Diet.

The Prime Minister has general supervision of administrative affairs. He is usually the most powerful member of the strongest political party at the moment, or a distinguished nonparty man from the peerage.

The Secretary of War must be an army officer above major-general in rank, and the Secretary of Navy an admiral.

The Council of Elder Statesmen (Genro).—The Genro, a purely unofficial advisory body, was really an inner clique of the Privy Council. It has now been reduced to one member, Prince Saionji, who is old and feeble. Formerly, under Prince Yamagata, it was the most influential organization in Japan on matters of high state policy, and exerted a powerful influence. But the influence that it formerly exercised is now divided among several individuals and organs whose identity is somewhat difficult to determine. In this group are the Premier, the Minister of Imperial Household, the Keeper of Privy Seals, and leaders of the Seiyukai, Seiyuhente, and Kenseikai Parties.

The Privy Council.—This advisory body consists of 24 life members, among whom are distinguished jurists, peers, and army and navy officers. This council considers and advises the Emperor on treaties and important legislation regarding constitutional and administrative law. Its power is great and probably increasing as the power of the Genro wanes. There are some, in fact, who hold that, upon the death of the last remaining member of the Genro, the Privy Council will assume its advisory capacity. But there are others who believe that a new Genro will be formed.

Army and navy staffs and councils.—These in theory are especially assigned the power of considering and advising on matters of military and naval policy. In practice, however, they exercise much

more authority and actually shape many of the nation's foreign policies.

Legislative.—The Imperial Diet consists of a House of Peers and a House of Representatives. The House of Peers consists of 393 members, approximately two-thirds of whom are from the nobility. Members serve for seven years or life. This body is the least political, the most bureaucratic, and usually the strongest in support of any government policy. Recently certain groups have shown a tendency actually to participate in the political struggle, either by allying themselves with a party in the House of Representatives or by forming a cabinet composed largely of their own members.

The House of Representatives consists of 464 elected members, who serve for four years, unless the Diet is sooner dissolved by the Emperor. This body is the political storm center in Japan, and unless in accord with the premier one or the other must fall.

The legislative power is ultimately under the control of the Emperor, while the duty of the Diet is to give advice and consent, and in giving this both houses are on a footing of perfect equality. This strengthens the administration, which can aid in breaking occasional deadlocks arising from the fact that the two houses have often worked at cross purposes.

The right to question ministers of state on the floor of the house is accorded the Diet.

Judicial.—The Japanese Judicial system is modeled after the French. There are four courts: (*a*) The local courts; (*b*) the district courts; (*c*) the court of appeals, of which there are seven; and (*d*) the supreme court, of which there is one court of 31 judges. There is no jury system, but from one to five judges sit on the cases. The above courts have both civil and criminal jurisdiction. Cases are opened in the local or district courts and carried up on appeal. Prosecution is assisted by the prosecutors of the Ministry of Justice. The constitutionality of law is not a function of the courts but of the Privy Council.

(b) Method of governmental functioning

In the functioning of government the truly absolute power of the Emperor is apparent and the personal influence of his advisors is the really great factor in the control of government. A new premier is designated by the Emperor on the advice of the Genro and the Privy Council. The premier forms a cabinet acceptable to His Majesty. A law contemplated is examined thoroughly by the Privy Council and its constitutionality then determined, though only when passed by the Diet and given the imperial sanction does

it become effective. The budget is prepared annually by the ministry and presented first to the lower house. If it is not approved, the budget for the preceding year remains in force, thus strengthening the central government. Furthermore, if the budget is not approved or a vote of censure should be passed, the cabinet fails or His Majesty dissolves the house and a new election is called. In the past, with one exception, the premier has won a favorable house on an appeal.

(2) LOCAL POLITICAL SUBDIVISIONS

(a) *Basis of subdivision.*—The political subdivisions of Japan proper follow the French system, and are here shown in their usual relation to each other.

| Corresponding to States | Corresponding to counties | Corresponding to townships |
|---|---------------------------|--|
| 3 Fu (districts with functions of ken and including cities of Tokyo, Osaka, and Kyoto). | Gun (county)..... | Cho (town). Son (village). |
| 43 Ken (prefectures), 1 hokkaido..... |do..... | Shi (city). Cho (town). Son (village). |

The shi (city) is a municipality governed under the provision of the local government law. It is subdivided into ku (wards).

There are 636 gun, 59 shi, 1,314 cho, and 10,885 son.

(b) *Power of local governments.*—

The governors of the 47 leading divisions are appointed by the Department of Home Affairs. The prefectural assembly, consisting of 30 or more members, from whom a council of 17 members are chosen, is elected by the people.

The governor has the authority of final ratification and the Department of Home Affairs may suspend the assembly at its discretion. While the prefectural assembly theoretically has little real power, the central government does, in fact, greatly respect local public opinion.

Local self-government in the cities, towns, and villages has a similar centralized system to the prefectures. The city council elects its assembly, which is the legislative body, and the city council, which is an executive body of which the mayor is head, are elected by qualified electors. In the towns and villages there are headmen elected by the town or village council with the approval of the prefectural governors.

The colonial governor-generalcies of Korea, Formosa, and Saghalien are operated under the Department of Home Affairs, and of Kwangtung, under the Foreign Office. The governor-general has almost absolute authority. The heads of the several departments under him are imperial appointees. There may be local advisory

bodies and a system of municipal and village councils, but there is in reality nothing bordering on local self-government in the counties.

(3) STABILITY OF GOVERNMENT

The Japanese Government is recognized as thoroughly stable both at home and abroad. National changes in the established system are not early expected and development depends largely upon the death of old leading figures and the more liberal tendencies of the members of the younger generation who take their places.

2. INTERNAL POLITICAL ISSUES AND POLITICAL PARTIES

A. IMPORTANT POLITICAL ISSUES

Political issues which distinguish a party are not closely drawn in Japan. Parties stand for "Japan first," and political campaigns become more a case of "ins" against "outs." On the one hand is conservatism, marked by a desire to preserve the old traditions; on the other liberalism, demanding better education, a favorable attitude toward labor, and peace.

A question which at present is occupying the center of the political stage is the so-called army "reform program." Briefly, it embraces a reduction to 17 of the existing 21 divisions of the army, which will effect a saving of some 18,000,000 yen. The money thus saved is to be applied to the initial organization and development of such new arms as chemical warfare, tanks, and antiaircraft, and to the further augmentation of the army air service. In addition, the program provides for the placing of discharged army officers in the middle and upper schools as instructors in military science, looking toward an eventual reduction of the compulsory service period with the colors. The program has yet to be adopted, but all indications point to its acceptance and consummation.

There is a growing desire among the people for a more democratic form of government. The immediate demand is for universal suffrage.

Annually, there are rumors of a reform of the House of Peers, but the movement has never yet advanced beyond the discussion stage.

Action on the part of the United States Congress prohibiting Japanese immigration to America has so far had two marked effects. One has been an increased spirit of "Asia for the Asiatics" in which Japan, as heretofore, has taken the lead. The other has been an effort to seek other outlets for future emigrants. For this purpose a committee composed of Japan's ablest statesmen has recently been formed.

B. POLITICAL PARTIES

As a result of the May, 1924, elections, the House of Representatives is now composed of the following:

| "Ins": | | "Outs": | |
|-----------------|-----|----------------------|-----|
| Kenseikai | 155 | Seiyuhente | 119 |
| Seiyukai | 101 | Chusoi Club | 39 |
| Kakushin Club | 29 | Business Men's Party | 8 |
| | | Independent | 13 |
| Government bloc | 85 | Opposition | 179 |

The Kenseikai Party was the leading opposition party in the last Government. This party is strong in the cities and caters more and more to liberalism and industrialism. The present Premier, Viscount Kato, is the head of the party.

The Seiyukai Party was the Government party before the May elections. It represents the conservative business and agricultural interests. Much of the power of this party was lost when several of its most prominent members withdrew and formed the Seiyuhente Party.

The Kakushin Club is the old Progressive Party, which dates back to 1882, having in the interim also been called the Kekuminte Party. It is the most liberal political organization of any importance. It advocates universal suffrage, reduction of the army, economic retrenchment, educational reforms, and closer relations with both China and Russia.

The Seiyuhente Party is a recently formed party made up of former members of the Seiyukai Party who broke away last winter in order to continue to support the Kiyoura cabinet which their party was attacking. At present the Seiyuhente is the strongest opposition party to the Government.

The other opposition groups have no definite political platform, and are of minor importance.

C. THE GOVERNMENT

Political parties may come and go, but throughout these changes there is a government which is solid and changes very little. Elder statesmen, privy councilors, and personal advisors to the throne rarely change except as death removes a leader and another takes his place.

Among those exerting most powerful direct influence on the Crown Prince Regent is Viscount Makino, Minister of the Imperial Household, a trained diplomat, with world ideas. He understands both the Liberal and Militaristic Parties of Japan and will probably not swing too strongly either way. His influence on the Crown Prince will be steady. Count Chinda, another personal adviser, is a

Christian, educated in America and formerly ambassador both to America and Great Britain. His influence is distinctly liberal and progressive. Prince Kanin, a prince of the blood, trained in the army, is chief adviser to the Crown Prince. He will stand for the imperial traditions and probably is the military party's strongest man in a personal advisory capacity. Viscount Hirata, Keeper of the Privy Seals, is very influential.

The Crown Prince, himself, has shown evidence of liberalism and is therefore very popular with the masses, but is only 25 years of age and his future policies can not be foretold.

The cabinet.—The present cabinet consists of: Premier, Viscount Taka-akina Kato; Minister of Foreign Affairs, Baron Kizuro Shidehara; Minister of Home Affairs, Roijiro Wakatsuki; Minister of War, Lieutenant General Ugaki; Minister of Justice, Semmosuki Yokota; Minister of Finance Takayuki Hamaguchi; Minister of Agriculture and Commerce, Viscount Korekiyo Takahashi; Minister of Railways, Mitsugu Sengeku; Minister of Education, Rychei Okada; Minister of Communications, Ki Inukai; Minister of Navy, Admiral Hyo Takarabe.

This is a coalition cabinet. It is composed of members of the Konseikai, Seiyukai and Kakushin Club Parties.

D. REGIONAL AND RACIAL DIFFERENCES; SEPARATIST MOVEMENTS

As a nation, the Japanese racially and politically are strongly united. However, unless those in power appease in the near future the growing demand for a more democratic form of government, the socialist element will undoubtedly cause serious internal disturbances.

E. FOREIGN INFLUENCES IN INTERNAL POLITICS

The influence of training abroad, or by foreigners, on Japanese people, and statesmen in particular, is very marked and usually reflects to the advantage of the country giving the training. This has worked to the benefit of pro-British and pro-American influence in general. The great importance of American trade also undoubtedly influences the political attitude of Japan toward America.

F. BEARING OF INTERNAL POLITICAL SITUATION ON INTERNATIONAL RELATIONS AND ISSUES

The Japanese Imperial Government is strong enough so that international relations do not suffer from frequent changes in the internal political situation. The most important concern to America is whether the Japanese administration tends toward liberalism or militarism. At present there is a decided tendency toward a change in the former attitude of aggression toward China. Friendliness

seems now to be the dominant keynote. One reason for this change may be found in a growing realization on the part of Japan that the white nations of the world are unwilling to forget race distinction.

The latest example of this (the American exclusion bill) has caused Japan to feel extremely bitter. One of the most restraining influences on any hostile tendencies, however, is economic necessity. Japan is economically too dependent upon America to act rashly in a manner that would seriously affect trade between the two nations.

3. FOREIGN POLICIES AND RELATIONS

A. GENERAL AIMS, IMPORTANT POLICIES OR DOCTRINES

The Japanese are thoroughly imbued with the idea that Japan must expand beyond her home borders to secure room for her surplus population and to provide an independence in resources which can make her a truly great nation. The Japanese have developed a racial pride which calls for leadership among the Asiatics and equal opportunity with Europeans wherever they can assert these principles. Japan's policy toward China proper contemplates an amount of economic and political control sufficient to insure uninterrupted supply of certain raw materials at all times and under all conditions, and toward Manchuria an attempt to dominate, both politically and economically, to a degree sufficient to exclude any other nation from that territory.

B. RELATIONS TO OTHER IMPORTANT POWERS; ALLIANCES OR ENTENTES; RECENT TREATIES

The Washington conference marked a new era in Japan's foreign relations. The four-power agreement drawn up at that time ended the Anglo-Japanese alliance and drew the United States and France into a new pact with England and Japan to preserve the peace of the Far East.

A marked change in Japan's attitude toward China has been evident since the Washington conference, the most recent example of which was Japan's policy of noninterference in the recent civil war in China.

The present attitude of the Japanese people toward America is sensitive and resentful, due to the passage of legislation excluding Japanese immigrants, and to the recent jingoistic war talk, but both of these factors are considered as passing phases not likely seriously to impair the traditional friendliness of the two Powers.

C. GENERAL INTERNATIONAL POLITICAL SITUATION

The one event of recent occurrence, which has had the most far-reaching effect on the general international political situation in so

far as Japan is concerned, is the Russo-Japanese agreement. After negotiations which have taken place intermittently ever since May, 1920, an agreement was finally reached on January 20, 1925. It consisted of the following:

1. A convention of seven articles.
2. A protocol ("A") of five articles.
3. A protocol ("B") of nine articles.
4. A declaration by Mr. Karakhan concerning the Portsmouth treaty.
5. An exchange of letters concerning Japanese exploitation of Saghalien coal and oil pending conclusion of concessions.
6. An annex note, signed by Karakhan, expressing regret over Nikolaevsk incident.
7. Two additional documents.

In effect, these agreements (except for the two documents, the purport of which is unknown) embrace the following provisions:

- a.* Soviet recognition of Portsmouth treaty; revision or abolition of all other Russo-Japanese treaties concluded prior to 1917; provision for conclusion of new treaty of commerce and navigation.
- b.* Loans and debts to be adjusted at another conference.
- c.* Russian apology for Nikolaevsk incident.
- d.* Prohibition of further functioning of Japanese wireless in northern Saghalien.
- e.* Mutual guaranties to refrain from propaganda or from harboring political agitators.
- f.* Japanese evacuation of northern Saghalien by May 15, 1925.
- g.* Japan to be granted 50 per cent in area of the northern Saghalien oil field established as a result of prospecting by the Japanese; and the concession of the capitalized coal fields in the Douo area. Japanese oil concessions are to follow the "checkerboard" plan, each square not to exceed 40 by 108 acres, and no contiguous squares to be granted, except in cases where Japan is already working oil fields.

The most important effect upon China of the new Russo-Japanese treaty, or agreements, is the fact that it puts Japan and Russia back in Manchuria again on a footing of equality, which in the light of the history of Sino-Russo-Japanese relations does not bode well for the future of China's rights in this territory. The most important effect upon American interests is the fact that by virtue of the conclusion of this recent treaty, potentially Russia is now an ally of Japan's.

To the Japanese Government the new Russo-Japanese treaty is a source of great satisfaction. Through it she has accomplished two very important things. In the first place, the treaty provides an understanding *quid pro quo* with Russia, Japan's most dangerous

competitor in north China; and in the second place, by virtue of this mutual agreement to maintain in north China (i. e. Manchuria) the present *status quo*, Japan is able, with greater assurance, to turn her attention to problems growing out of her relationships with the Occident, particularly Great Britain and the United States.

JAPAN

NAVAL NOTES

[From Japanese press]

Alteration of forward masts on capital ships

In consequence of the advancement made in ordnance the shooting range of guns on capital ships has come to exceed 20,000 meters, and as a result observation and command from the upper bridge of the type now installed has become difficult and of little use.

There has been some discussion of the advisability of altering the forward mast of the *Ise*, *Hyuga*, *Fuso*, and *Yamashiro* (battleships), and *Kongo*, *Hiyei*, *Kirishima*, and *Haruna* (battle cruisers), similar to the installation on the *Nagato* and *Mutsu*, and the need for this alteration was strongly felt during the recent maneuvers. The first ship on which this work is to be started is the *Hiyei*. The *Hiyei* is at present tied up near the shore at Kure and the above-mentioned alterations will be completed by end of May, and she will join the second fleet from June.

Repairs to "Fuso" completed

The *Fuso*, which has been undergoing repairs since December, 1923, has recently been completed and she returned to Kure. After taking on supplies and fuel she will join the fleet at Mitajiri.

Her forward mast has been reconstructed similar to that of the *Nagato* and *Mutsu*, and has been equipped with a deck for landing of airplanes as well as airplane derricks and sheds.

Construction of light cruisers

The *Kako* and *Furutaka* are expected to be completed by fall of 1925. The work of construction of the *Myoko* and *Nachi* was started at the Yokosuka and Kure yards, respectively, toward the latter part of last year, and these cruisers are expected to be completed by the spring of 1926. The construction of the *Ashigara* and the *Haguro* is

expected to be started early next spring. The four 7,100-ton and four 10,000-ton cruisers are expected to be completed and ready for commission in the summer of 1928 at the latest. The completion of these eight first-class cruisers is expected to greatly add to the strength of the Japanese Navy, which is fast falling behind that of the other naval powers.

It has been decided to build the two 10,000-ton cruisers *Ashigara* and *Haguro* at Kure and Yokosuka, respectively. A supplementary budget will be asked in order that construction on these two cruisers can be started this fiscal year.

The light cruiser *Furutaka* (7,100) tons) was launched at the Mitsubishi Dockyards, Nagasaki, on February 25, 1925.

The second-class cruiser *Naka* will be launched at the Yokohama Dockyards on March 24, 1925.

Submarine notes

Submarines *I-57*, *I-62*, and *RO-66* are to be built at Kure. In order that construction can be started this fiscal year a supplementary budget will be asked for.

NOTE.—If this report is correct it appears to indicate that of the 14 submarines yet to be ordered 6 are to be of the 1,500-ton class and 3 of the 998-ton class. This conclusion being arrived at by filling in the missing numbers between *I-55* and *I-58*, between *I-58* and *I-62*, and between *RO-64* and *RO-68*. The total tonnage of these 9 submarines is 11,994. Report number 302, 916-100 of October 8, 1924, indicates that the 14 submarines not yet ordered will have a total tonnage of 17,756 tons, so that the remaining 5 submarines of this 14 will have a total tonnage of 5,762 tons.

RO-60 to *RO-68*, inclusive, are 9 submarines of the 998-ton class, which will probably be organized into three divisions of 3 submarines each.

I-53 to *I-62*, inclusive, are 10 submarines of the 1,500-ton class. If the organization of these submarines per division is carried out 2 more of this class must be laid down, making 12 of this class with four divisions of 3 each. This leaves 3 submarines, or a balance of 2,762 tons, yet to be accounted for. These remaining 3 submarines may be of the 1,000-ton class; making a total tonnage of 3,000 tons instead of 2,762 tons.

When the supplementary budget is presented this office will ask the Japanese Navy Department to confirm the newspaper report.

Launching ceremonies of submarines *I-2* and *RO-68* are to be held at the Kawasaki and Mitsubishi Dockyards, Kobe, on January 23, 1925. Admiral Takashita, commander in chief of the Kure Naval Station, is to supervise the proceedings.

Submarine RO-72, which sank in Kure Harbor in October, 1923, was dropped from the submarine division on February 2 and attached to the defense corps and will be used only for experimental purposes. She is expected to be placed entirely out of commission before long.

Cold resistance tests by submarines

The fifth submarine division, consisting of the RO-21, RO-22, RO-23, will go north along the coast of the Kurile Islands to study the conditions of the sea bottom and to undergo cold resistance tests.

They will leave Ominato February 5, going by way of the east coast of Hokkaido as far north as Etorofu Channel, and will be guarded by the eighteenth destroyer division (*Aomatsubara*, *Takitsuki*, *Hosokabe*, and *Isobara*).

The authorities concerned are interested to know how these RO boats which constitute the main part of our submarine force will stand the tests.

Dispatching pigeons from submarines

The Japanese Navy has for some time been studying the use of submarines in connection with submarines, and is now studying a method of dispatching pigeons from submerged submarines.

To accomplish this the pigeon is placed in a double-barrel metallic tube, with door on both sides; this tube is shot through a discharging tube while submerged. On reaching the surface the door automatically opens by means of water pressure, thus releasing the pigeon. Heretofore the only means of communication from submerged submarines was by means of underwater signals, but by the above means a submerged submarine can communicate with the shore more freely.

JAPAN

AVIATION NOTES

March, 1925

(From *Japan's News*)

Flight over Mongolia by seaplanes

When the first fleet cruises along the northern coast of China from the middle of March to the middle of April the airplane ship *Wakatsuki* will send out eight seaplanes (Yokosuka Navy Yard scout planes) to fly over inner Mongolia, with Gulf of Pechili as base.

Flight from Kasumigaura to Kurile Islands

A plan is now maturing for a flight from Kasumigaura to the Kurile Islands and return by the Kasumigaura air corps. The distance to be covered would be more than 2,000 miles. A definite plan will be presented to the Yokosuka Admiralty for approval.

As permission is almost certain, the flight, the longest ever made in Japan, will probably be attempted at the end of April, or at the beginning of May at the latest. Two naval planes, both with motors of 450 horsepower, will be used in the flight, which will start at Kasumigaura and terminate at Hitokappu through Kushiro and return.

The six best pilots will be selected from among the navy pilots, each three taking charge of one machine. About one week is expected to be taken for the flight.

Cause of loss of "SS-3" in March, 1924

After a year's investigation and experiment it was discovered that the explosion of the SS-3 airship, on March 19, 1924, which caused the crew of seven to lose their lives, was due to radio waves. Experts had discussed the cause of the explosion but had arrived at no conclusion. It was virtually decreed that the cause of the explosion was a mystery when this discovery was made by Dr. T. Terada, professor in the College of Science of the Tokyo Imperial University and a member of the board appointed to discover the cause of the explosion.

Experiments were carried out at the university laboratory, and recently he announced his theory to a gathering of scientists. The exact nature of the experiments is not known, but Doctor Terada concludes that the explosion of the airship was due to broadcasting radio waves. A miniature airship was brought to the experimental table and radio waves broadcasted to it. To ordinary matters the radio sparks were only a few centimeters in length, while against the metallic paint of the airship the sparks produced a length of 7 to 8 inches. The cause of the explosion was declared as due to this.

This discovery has brought the question before the aeronautic authorities of the Government on the subject of the metallic dope used by the British in favor of paints from botanic bases. An officer attached to the Kasumigaura Air Force made the following statement: "Although Doctor Terada's discovery as to the nature of the aluminum dope used by the British in painting the bags of airships will bring up keen debate as to the use of metallic paints as

used on airships, there are a number of reasons why this kind of paint is used in preference to the vegetable paints used by the French. When using the metallic paint the entire craft becomes an antennæ for radio communication: it is a protection against influences from metal gases, a refraction against heat waves, an absorber of ex-purple rays and others, and has been found superior to vegetable paints. As far as insulative nature is concerned, the vegetable paints are safe against radio waves, but when it comes to protecting the heating of gases from combustion metallic paints are superior. The authorities will continue to use metallic paints upon aircraft, but certain investigations must necessarily be carried out in connection with the uses upon craft which have any connection with combustible gases."

Dirigible "SS-4"

The dirigible SS-4 has been undergoing various tests by the Kasumigaura Corps in order to determine the cause of the accident to the SS-3. These tests have been completed, and she will make a trial trip about the middle of February. The SS-4 will be of the same yellowish color as the Astra dirigible. The SS type can be built at about one-third the cost of the Astra type, and is well adapted for training purposes, and several are expected to be built in the future.

Trial of Rohrbach hydroplane

A trial flight of the Rohrbach plane recently received at Yokosuka took place on January 23 by the Danish makers, and successfully passed the various tests. On the 24th, Lieutenant Senda made a trial flight lasting about an hour, and the results were very favorable.

NOTE.—Lieutenant Senda is regarded as the premier naval aviator of Japan, and was stationed at the Oppama Air Station at the time this station was visited on November 13, 1924.

Additional information on naval air service

The following information has been obtained from the Japanese Navy Department.

In order that this information may be understood, the Japanese Naval Air Service organization must first be explained:

The Japanese naval air force consists of (a) air companies; (b) air detachments. The Japanese air company is a unit similar to

the United States air squadron, but the Japanese air company is assigned only to shore air stations, and is used for land defense only. In addition to the air companies assigned to a certain naval air station there are planes and personnel at this station which are used to provide air detachments for airplane carriers and for fleet use.

In the future, when the *Kaga* and *Akagi* are commissioned, this organization will probably be modified to the extent that a permanent air detachment will be carried on each of these carriers. From written information obtained from the Navy Department and conversations with an aide to the Minister of Marine it appears that the Japanese naval air service organization is still in an unsettled state in some respects. The reason for this is mainly believed to be that experimental work is still being undertaken to decide such problems as how best to stow and fly airplanes from vessels of the fleet and on the present airplane carriers, and until these questions are settled airplanes will not be permanently carried on vessels of the fleet or on the *Hosho*.

The present organization of the naval air force as described above meets the conditions as they now are. During maneuvers or for test purposes, when it is desired to equip Japanese ships or plane carriers with planes, these planes, according to present organization, are obtained from any one of the four naval air stations.

There are now a total of 11 airplane companies which are distributed among the naval air stations of Yokosuka, Kasumigaura, Sasebo, and Omura. This number includes one or more training airplane companies.

There is now one dirigible company and one balloon company.

Total number of airplanes now in use, including training planes, is 400.

According to the organization, an active airplane company consists of 16 planes, and a training air company consists of 24 planes.

The present paper organization calls for 443 airplanes, which includes the planes intended for the *Kaga* and *Akagi*, for the air stations, and for all other purposes.

The present expansion program calls for the following additional companies: 1925-26, 1 company; 1926-27, $2\frac{1}{2}$ companies; 1927-28, 1 company; 1928-29, $\frac{1}{2}$ company; 1929-30, 1 company. This calls for 96 planes by 1930 in addition to the 443 authorized at present, or a total of 539 planes. Nothing further will be asked of the Diet except the one company for 1925-26 in the existing expansion program.

The naval air force at present has 2 dirigibles and 6 balloons. No decision has been made as yet as to what expansion will be made in dirigibles and balloons.

The present naval air organization does not provide for reserve planes. The 400 planes now in use comprise the total number of planes in active commission and in reserve.

The aviation personnel is as follows: Officers, 483; men, 3,653. (One hundred and twenty-four officers of the 483 are pilots and 200 men of the 3,653 are pilots.)

There is at present no naval air reserve personnel. There are 10 or 11 officers who have become incapable of flying, due to injuries, who are in a reserve or retired status.

The 1924 budget for naval aviation as approved by the Diet is as follows:

| | Yen |
|--|------------|
| Maintenance of Aviation Corps..... | 17,711,092 |
| Establishment of Aviation Corps..... | 1,840,514 |
| Maintenance of deck planes for capital ships..... | 2,063,563 |
| Manufacture of above deck planes..... | 100,000 |
| Expenditure for <i>Akagi</i> and <i>Kaga</i> | 7,700,000 |
| Total..... | 29,415,169 |

JAPAN

MISCELLANEOUS NOTES

[From Japanese press]

Tokyo Harbor plans

Reports on the work being done to make Tokyo Harbor more accessible to large ships indicate that rapid progress is being made. A great pier, 1,800 feet long and 50 feet wide, to cost about 1,400,000 yen, is one of the numerous special features of the reconstruction work at the mouth of the Sumida River in connection with the Greater Tokyo Harbor plan.

In the original plan of the harbor commission 6,000,000 yen was appropriated for deepening the bay along Tokyo. It was to be made 18 feet deep and have a channel with an average width of 300 feet. With these plans ships of the 4,000-ton class could come up to Tokyo at high tide along the coast past Shibaura. It was planned to complete the work in eight years. This plan has been modified. The city authorities realized the original idea was on too small a scale for Greater Tokyo and the needs of a deep harbor. So the appropriation was tripled and funds up to 19,000,000 yen made available. With this scheme the harbor is to be enlarged, having a channel 22 feet deep and 480 feet wide. This will enable ships of the 6,000-ton class to pass at high tide and 4,000-ton ships at any time. The dredging work will deepen a total area covering about

1,300,000 tsubo,¹ it is estimated. It is considered probable the Tokyo municipality will adopt the plan put forth by the authorities working on it. In fact, so certain are those in charge that work on dredging the bay already is under way off the coast of Shibaura.

Another feature of this work is that it provides earth with which reclaimed land can be built up along the bay. It is estimated as a result of the dredging nearly 8,000,000 tsubo of land will be reclaimed. The water line will be changed as the ocean floor is sunk, and the mud taken up in this manner will be used to fill up several hundred thousands of tsubo.

A breakwater about 14,000 feet long is to be constructed. This is to protect the newly made and reclaimed land. As a result of the entire program many vessels that now dock at other ports can come up to Tokyo, or at least Shibaura, which will facilitate transportation of freight shipped to this city.

Oil fields in Northern Saghalien

The following is an extract on the oil situation in Northern Saghalien:

"As to oil, in view of the annual decrease in the output of oil in this country when the demand for petroleum for naval and industrial purposes is increasing by leaps and bounds, the oil fields in Northern Saghalien naturally attracted considerable attention here. Shortly after the occupation of the place, therefore, an association of the name of the Hokushinkai ('Pole-star Association') was organized by the Mitsui, the Mitsubishi, the Suzuki, the Nihon Sekiyu Co., etc., with a capital of 5,000,000 yen (of which only a quarter was paid in, according to the Chugai Shogyo), and started to bore for oil in Northern Saghalien with the assistance of the naval authorities. It still continues its operations. The concern is now engaged chiefly in collecting oil on the eastern shore, and although the state of its operations and the quantity of oil produced are kept absolutely secret, it would seem that the daily output at present is 500 koku, which is being transported by vessels belonging to Asahi Sekiyu Co., to be used chiefly as naval fuel. According to the Chugai, however, the Hokushinkai, after having tried 30 places in Alexandrovsk and Oha since 1920, are now working in 6 places in Oha, of which only 2 are producing 100 koku per diem, while nothing definite is yet known as to the future of the rest. The serious drawbacks of the oil fields of North Saghalien are: (1) That they entail prospecting expenses which are about twice as high as at

¹ 1 tsubo equals 36 square feet.

home: (2) that they can be worked only during the seasons of spring and summer: (3) that as they are situated on the eastern shore, the oil produced can be shipped only for one month in the year, which is about the utmost time during which ships can safely lie at anchor on that shore: and (4) that the imposition of tax by treaty at the rate of 5 to 15 per cent on the total output, or 45 per cent in the case of gushers, will make Saghalien oil much more expensive than American oil and render the cost of production greater even than it is here. In the light of these facts, though Japan has secured a lease for a period of 40 to 50 years, over 50 per cent of the oil fields within the area respecting which the mineralogical survey has been completed, the Chugai fears that it can hardly be regarded as a satisfactory settlement of the oil problem for the country, as some people are disposed to hope."

Japanese propaganda in Shantung

[From Chinese press]

LATEST JAPANESE PUBLIC OPINION TOWARD THE UNITED STATES

Since the passage of the immigration law the feeling of the Japanese toward the United States has become worse. This is because recently the United States decided to conduct naval maneuvers in the Pacific and because some wanted to call a conference of the white race.

The Japanese Government, fearing that the people might get excited, with serious results, is doing her best to keep the peace, and has told all her ministers in foreign countries to promote peace to say that there will be no trouble between the two countries. The people, however, are in a state of unrest. The conditions are as follows:

(a) *Point of view of the common people.*—The United States decided to have naval maneuvers on the Pacific from January to September as a preparation for war. The Japanese believe that the United States considers Japan as the enemy and intentionally makes a show to Japan of her naval power. Although the United States advocates justice and humanity, in reality she is preparing for war. Yesterday a number of politicians and scholars had a meeting at which there were present more than 300, and at which various men gave addresses asking that the United States be formally requested to cancel the naval maneuvers, and that in case she refused the maneuvers be considered a challenge to Japan on the part of the United States. In this matter the United States violates the decisions of the Washington conference and also disturbs international peace. Furthermore, the United States wants to ask Australia and

New Zealand to take part, just as if war had been declared. Accordingly the meeting unanimously decided to request the President and Congress of the United States to have a regard for international peace and to cancel the proposed naval maneuvers. After the meeting the men visited the English, French, and Italian ministers to explain to them the action they had taken.

(b) *From the point of view of the Government.*—Recently the committee on immigration into the United States insisted on a unified policy of immigration and asked for a conference of the white race of the Western Hemisphere. When the Japanese heard this public opinion became exceedingly agitated, with the result that Tokyo, fearing this excitement on the part of the people, ordered the Foreign Office to send out notices quieting public opinion, saying:

“Formerly, there were those in the Pan American Union who insisted on a unified immigration policy for both Americas, which meant applying the Monroe doctrine to the problem of immigration. This idea has passed the lower House of Congress, but it has not yet passed the upper House. Furthermore, even if it should pass and the President should call the conference, it is not certain that the other countries will agree with the United States. With the exception of Brazil, the South American countries do not favor the idea. Most of the countries were colonized by Spain and feel bound to Spain first of all. In the second place they feel bound to the United States for economic reasons, so that practically the influence of the United States in these countries is very limited. Moreover, it is not necessary for the South American States to unite with the United States in this matter. There is very little probability that the Pan American Union will succeed. We need not worry. Moreover, the Pan American Union is not necessarily aiming at Japan. We should remember this. On the other hand, the United States also fears that a strained feeling between the two countries may develop, with the result that when the new Japanese minister to the United States arrived the authorities sent out notices expressive of the good will existing between Japan and the United States. This was done to put a stop to the rumors about Japan.”

PARAGUAY

AVIATION SERVICE

The Paraguayan Aviation Service is organized in a single squadron.

Personnel.—At present the personnel assigned to aviation is as follows: Four officers as pilots, 3 noncommissioned officers, 15 men. The civilian personnel consists of: One outfitter, 1 mechanic, 3 carpenters, 1 cook. The present plans do not contemplate increase in personnel.

Aircraft (serviceable).—There are at present 6 planes in the Paraguayan Army Service (2 of which are bombing planes and 4 observation planes), and no civilian planes in Paraguay as far as reported. Of these 6, 3 are at present in good condition and the remaining ones are now undergoing repair. No purchases are contemplated. There are no dirigibles or balloons.

Appropriations.—The total appropriation for aviation, under the appropriate section of the budget (Annex F, paragraph 4) for the fiscal year 1924–25 amounts to 3,600 gold pesos and 47,400 paper pesos, which equals in United States \$4,323.53. This amount during the fiscal year 1923–24 was 5,200 gold pesos and 52,800 paper pesos (in United States \$5,907.71). This amount represents merely the salaries of the noncommissioned officers and civilian personnel, the officers concerned being paid from the regular army pay rolls, and are not distinguished in the budget. Clothing and subsistence are provided these men in the same proportion as the other army personnel, rationing being calculated at 3,637 paper pesos (in United States, \$78.18 per soldier per year). Clothing is calculated at 66.59 gold pesos (in United States, \$60.97 per soldier per year).

Training.—There is at the present time no training of pilots in progress, but the school is presently to resume work, and is calling for volunteers for that purpose.

Political situation as regards aviation.—Judging from the decrease in appropriation this year over last, the popular flurry over the Bolivian incident and the resulting increased attention to the army apparently has not yet had its effect on aviation, perhaps because the terrain in the direction of Bolivia has never been studied from the standpoint of aviation, and the use of the airplane is as yet a matter for the future.

RUSSIA

MISCELLANEOUS NOTES

February, 1925

Air service—Leningrad, Helsingfors, and Stockholm

The active director of the Junkers Works has issued a statement to the Moscow press to the effect that an air service will be inaugurated in the very near future between Leningrad, Helsingfors, and Stockholm.

Plans for a service between Moscow and Leningrad have recently been abandoned, as it was feared the proposition would not be a paying one, owing to the excellent railway service between these two places.

Strength of soviet army

The intelligence division of the Polish General Staff has just published a book on the "Organization of the fighting forces of the Soviet Union during peace." It is stated that this book will soon appear in various European translations.

The Polish General Staff estimates the strength of the regular soviet army at 720,000 men, divided between 61 infantry divisions, 13 cavalry divisions, and 6 artillery brigades. Of these, 28 infantry divisions, 7 cavalry divisions, and 1 artillery brigade are detailed to the western frontier—that is, to the military districts of Kiev, Smolensk, and Leningrad.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

NUMBER 5—1925

MAY, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officer of capital ships, the larger patrols, destroyers, and submarines.



CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

NUMBER 5—1925—MAY, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

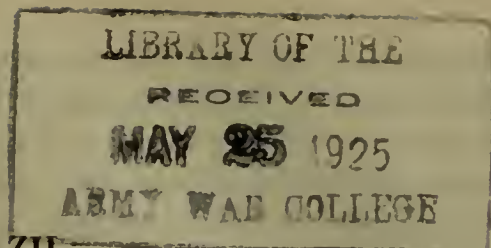
| | |
|---|-----------|
| BRAZIL: | |
| Notes on a trip up the Amazon----- | Page 1 |
| CHINA: | |
| Aviation instructor for Mukden arrives at Dairen----- | 2 |
| List of Chinese officials----- | 7 |
| Political note----- | 8 |
| ESTHONIA: | |
| Naval organization----- | 8 |
| FRANCE: | |
| Inspection of naval air station at St. Raphael----- | 9 |
| Naval notes----- | 11 |
| GERMANY: | |
| Antiaircraft fire control----- | 12 |
| A visit to the Zeiss Optical Works at Jena----- | 17 |
| Notes, Miscellaneous----- | 18 |
| GREAT BRITAIN: | |
| Personnel of Royal and Dominion Navies----- | 20 |
| Distribution of British Regular Army forces----- | 22 |
| Inspection of Bristol Aeroplane Co. (Ltd.)----- | 23 |
| Engine developed by the Armstrong-Siddeley Co----- | 27 |
| A visit to works of Messrs. Vickers (Ltd.)----- | 28 |
| Inspection of works of Cammell Laird (Ltd.)----- | 29 |
| South African naval policy----- | 30 |
| Naval defense of British Eastern Africa----- | 31 |
| Miscellaneous notes----- | 32 |
| ITALY: | |
| Belluzzo turbines for "Crispi"----- | 38 |
| List of airdromes and seaplane stations----- | 42 |
| Visit to Italian aircraft factories----- | 43 |
| The Jubaland Treaty----- | 46 |
| Miscellaneous notes----- | 47 |
| JAPAN: | |
| Mine planters and mine sweepers----- | 50 |
| Japanese ships under construction----- | 51 |
| Military intelligence service abroad----- | 52 |
| Miscellaneous notes----- | 53 |
| LATVIA: | |
| Present naval establishment----- | 59 |
| NETHERLANDS: | |
| The Dutch marine establishment at Soerabaya----- | 61 |

| | |
|--|------|
| NORWAY: | Page |
| Proposed appropriation for submarines----- | 64 |
| PANAMA: | |
| Estimate—All factors----- | 64 |
| PERU: | |
| Recent events----- | 77 |
| RUSSIA: | |
| Army air force----- | 83 |
| SPAIN: | |
| Cruiser “Mendez Nuñez”----- | 85 |
| SWEDEN: | |
| Naval note----- | 87 |
| SWITZERLAND: | |
| A visit to the works of Sulzer Bros----- | 87 |

The material for the Bulletin is largely derived from service sources, and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

5. 11.



BRAZIL

NOTES ON A TRIP UP THE AMAZON

December-January, 1924-25

Pernambuco.—The second port was Pernambuco. It takes a pilot and careful navigation to follow the best water through the breakwater. The port authorities are trying to force all ships entering port to go alongside the docks and pay dockage fees. There seems to be no tug service, so if both tide and wind are not favorable it is difficult to dock a large ship. The British Royal Mail has refused to send all steamers to the dock and dropped out Pernambuco. There is a row on about it. There is a large triangular space just inside the breakwater entrance where a big ship can anchor, but this does satisfy the harbor authorities, as they want ships to dock and pay dockage fees. Work is still in progress on the docks and warehouses, which will be quite complete and modern. The foundation of the breakwater is a natural reef. In fact, a reef runs along this part of the Brazilian coast for many miles. The harbor is really too narrow. Recife is a city of 250,000 people. It seems to be built on a series of islands and peninsulas, as you are constantly crossing bridges. The docks, warehouses, banks, steamship offices, post office, importing and exporting houses are on a narrow strip of land about three blocks wide along the harbor front. The naval apprentice school is in the *middle* of this strip, a block from the water on each side and has *no* boats.

Ceara.—The fifth port visited was Fortaleza, State of Ceara. This is the worst place (as a seaport) in Brazil. The coast is absolutely open here. The ship rounds to heading east and lets go two anchors. There seems to be a strong easterly breeze night and day and the ship keeps both chains taut. The boatmen are really excellent. We shoved off in a whaleboat, being picked up by a tug and towed a half mile to a pier which was made of long piles and extended out some 150 yards from the beach. The piles were open, so the surf swept through them, but the boatmen finally with bow and stern lines hauled the boat up to an inclined gangway ladder. The boat rose and fell about 5 feet, but with assistance the passengers jumped to the ladder and were dragged up on the pier. The pier seems to be falling down and there were three steps missing in the ladder just at the water's edge. A new pier has been started, but

work has been stopped due to lack of funds. It will cost thousands and thousands of dollars to build a breakwater sufficient to inclose a harbor at this place. Small ships can enter a small port in the western part of the coast of Ceara—at Camocim. It seemed very hot on shore, but there is a place in the hills—at Maranguape—a few miles, where some of the families go to recuperate.

Maranhão.—The sixth port visited was Tutoya, in the State of Maranhão. We therefore passed the State of Piauí, which alone of all these northern coastal States does not seem to have a seaport. The chart shows a small port called Amarracão from which a railroad, the Central of Piauí, runs down into the State. The boundary commission, already mentioned, has been charting the Rio Parnahyba very carefully and this river will doubtless form the official boundary between Piauí and Maranhão, over which there has been some dispute. Tutoya is really just an anchorage in the delta of the Parnahyba River. It was necessary to anchor for three hours to wait for high water. The harbor is poorly charted. The official chart, based on surveys of foreign officers made years ago, is not up to date. As we sailed at 8 p. m., it was necessary to send out three small boats before dark. The boatmen hung to the buoys and held up lanterns. These regular buoys (a line of black buoys) should be replaced with lighted buoys. The wreck of a large ship helps to mark the entrance in the daytime.

The ship sailed from Maranhão at 8 p. m. and had to round São João Island en route to Para. The light on this island fell down some three or four years ago and has not been replaced. There are many shoals off the coast at this point, with bad, uncertain currents. A wreck has marked one shoal (Manoel Luiz Reef) since 1922. Lighthouses and lighted buoys are urgently needed off the coast of Maranhão and for the harbors of Tutoya and Maranhão. On the second night out we picked up a pilot off Salinas. Pilots for Para are picked up from a pilot boat which cruises 5 miles to the northward off Salina Light, a point some 100 miles from Para.

The condition of lights and buoys off the Amazon, the one place of the whole coast where they are most needed, is scandalous. As the Bragança Lightship (which marked the mouth of the Para River) went adrift some years ago and there are no buoys (lighted or otherwise), it was necessary to anchor from 9.30 p. m. until 4.30 a. m. and to enter the Para River after daylight when the surf could be seen breaking on Bragança bank. This bank, together with Catejuba and Tijoca banks, should be marked with lighted buoys. (See B. A. chart No. 2186, River Para; also No. 1803, Cabo do Norte à Maranhão.)

The Booth Steamship Co. issues special charts to their captains on which are drawn two red lines marking the outer and inner

limits of these banks, and the captains are forbidden to cross this zone, either in or out bound except in clear daylight. These delays for all steamship lines are costly.

Para.—The eighth port visited was Belem, State of Para. Upon entering the inner harbor it is surprising to note a fine line of lighted buoys on each side of the channel, another line of red, lighted buoys off the line of docks and two more to mark a turning basin. However, it was learned that a private company, the "Port of Para," had charge of dredging the inner harbor, placing the buoys, building the docks and warehouses. After visiting practically every harbor on the Brazilian coast, from Rio Grande do Sul to the mouth of the Amazon, it has been noted that the inner harbor of Belem do Para has the best buoyage system. There is no buoyage system to mark the outer harbor. This part is under the Navy Department.

The Amazon flotilla, which did base on Manaos, now bases at Belem. The *Amapa* and *Ajuricaba* are at anchor off the city waterfront, while the *Teffe* and the *Missoes* are tied up at the naval arsenal, practically out of commission. The *Missoes* has three rudders and twin screws. I did not go over these four gunboats. The last two seemed of no value. The Bragança light-vessel was at the arsenal but no work was in progress on her. She was said to be beyond repair.

People generally think that upon approaching the Amazon River ships start right up the river. Such is not the case. There is a huge delta at the mouth of the Amazon. One island in this delta—Ilha de Marajo—is larger than either Belgium or Holland. Then there are many smaller islands. The real Amazon flows by to the northward of these islands but there are so many obstructions ships can not use this channel. Ships must enter the Para River, go south down the east side of this Marajo Island, then west across the south side and finally half way up the west side before entering the Amazon River proper. The passes around the southwest side of this island are narrow, tortuous and difficult to navigate as there are few lights. The banks are low and a solid mass of green tropical vegetation. While coming down the river on a big freighter tropical rain squalls passed frequently from 2 to 5 a. m., at which time it was necessary to stop the main engines, and when flashes of lightning illuminated the banks the engines would be moved ahead enough to keep the ship under control. Coming with the current, it was impracticable to anchor. During the moonlight it was quite wonderful to follow this narrow curved channel among the small islands. You hardly knew whether the channel turned to right or left, as it seemed to close in entirely a short distance ahead. After

steaming about 250 miles from the mouth of the Para River the ship enters the Amazon River.

The river has the appearance of being generally from 4 to 8 miles from bank to bank. Many writers say it is 60 to 80 kilometers wide, meaning mainland to mainland. There is a constant string of islands, so without a good map (there are no real good ones to be had) you do not know whether the bank is an island or the mainland. The banks are solid masses of green foliage. The natives exist in flimsy huts along the banks. Generally there is a small clearing with a corn patch at the side and a native canoe or two tied up in front. Small naked children paddle these canoes fearlessly out to get into the waves caused by the ship. They must learn to paddle a canoe before they can walk. At the mouth of the Amazon there is only the rise and fall caused by the tide; a thousand miles up the river, at Manaos, the rise and fall is over 40 feet. This means that the river overflows the banks during the high-water season, particularly up toward Manaos. Natives take to the boats and even put their cattle on rafts.

Manaos.—The ninth port visited was Manaos. This was the limit of my trip. The ship docked at one of the two huge floating docks. With a 40-foot rise and fall of the river, floating docks are necessary. The dock was resting on a number of huge steel cylinders. Each section seemed 6 feet in diameter and 12 feet long, and there were from four to six sections in each cylinder, depending on the width of the dock. This floating dock was connected to the mainland about 200 feet away by a platform on floats wide enough for a double-track railway and a walk for pedestrians. A long inclined platform ran up through a cut in the bank to a cable building, where an engine hauled loaded cars of freight by cable up the incline. On the other floating dock were tall towers, and cables ran from the tops to towers on the mainland. Freight in slings was run along these cables. The water is so deep here that there are large buoys anchored in the river for ships to tie up to.

All the harbor improvements—docks, buoys, warehouses, etc., even the customhouse—were built by a private company, the Manaos Harbor (Ltd.), which has a 60-year concession, and then all this property goes over to the government. This company gets its returns by collecting storage charges on all freight, both exports and imports, which must be stored and passed through the warehouses. The company turns in honest lists of all imports and exports, which pleases both the Federal and State authorities, as it enables them to check the import and export duties which they, respectively, collect.

Note on Revolutionary Outbreak in Manaus

The cause of the recent revolution was freely discussed by everybody in Manaus. Briefly, when Rego Monteiro was governor he appointed his three sons as secretary of state, mayor of the city, and the third, a mere youngster, as chief of police. His son-in-law was president of the Deputados. There is no senate in this State. The governor had salaries paid to his own family, but gave orders to other officials which the treasurer would not honor, nor would the banks or merchants buy them even at a discount. Finally the governor's agents would buy these orders up at a big discount, whereupon the governor would cash them in at full face value. The governor got very unpopular, so he turned his duties over to his son-in-law and with his wife went to France. His wife wrote back to this acting governor that when the customs duties were paid from two Booth steamers (*Hildebrand* and *Stevens*) not to turn any of the money into the treasury or to pay any salaries, but to give certain percentages to the three sons and to himself and to send the rest over to France to her husband. The revolution broke out, so when the letter arrived the rebel chief read and sent it to the President of the Republic. This young army officer, Lieutenant Riveirp, who lead the revolt, took money from these sons and son-in-law, paid up salaries long over due, and made himself very popular. Post cards showing his picture are on sale all over the city. When the Government forces overpowered the revolutionists, this leader was sent to Para to be imprisoned. At present Dr. Alfredo Sá (appointed from the State of Minas Geraes by the President of the Republic) is acting as governor, while another appointee by the President, from Minas, is acting as chief of the police of the city. This temporary government is expected to last between one and two years, when a new election will be called.

CHINA

AVIATION INSTRUCTOR FOR MUKDEN ARRIVES AT DAIREN

[From the Manchū Nichi Nichi, March 1, 1925]

As previously reported in a Tokyo telegram, Marshal Chang Tso-lin has decided to engage two instructors from the Tokorozawa Aviation Corps in Japan to act as advisers to the Fengtien Aviation Corps. A lieutenant of infantry, N. Ozawa, who was a member of the research section of the Tokorozawa Aviation College, and concurrently an instructor in the same school, arrived at Dairen on February 28, 1924, accompanied by Mrs. Ozawa. The officer made the following remarks on board ship:

"At present only one French and eight Russian aviation instructors are engaged by the Fengtien army. At the time of the Fengtien-Chihli war, it appeared that Russian aviation officers were used as pilots, but as they piloted only, in spite of the large number of machines operated, the military results were unsatisfactory.

"Marshal Chang Tso-lin plans the completion of the Fengtien aviation force in view of the general condition of world affairs, and negotiations with a view to the engagement of instructors from Japan had been carried out. This was delayed, however, by various causes, it being only recently decided to send me as an advisor. The Fengtien army has comparatively many aeroplanes of a superior type, and as it reported that machines similar to that wrecked by Captain D'Oisy at Shanghai will arrive at Mukden in the near future, Mukden should have the best aviation equipment in China.

"Aviation in Japan has made considerable progress but civilian activities in this line have not advanced to the extent commonly reported. Especially, at present civilian aviators are finding it difficult to maintain themselves, caused by the fact that they attempt to become independent too quickly. For example, if one is graduated from the Tokorozawa, and is able to pilot a machine, he at once opens an aviation school or takes up the instruction of aviation.

"It is considered that such graduates should wait until they gain sufficient confidence as to their technical ability, establishing an organization in the nature of an aeronautical association. This would give valuable assistance to the development of civilian aviation."

Note from a consular report.—"The above remarks of Lieutenant Ozawa regarding the Mukden aviation equipment are substantially correct. I was amazed to learn that there are more than 200 aeroplanes of all descriptions in Mukden at present: of course there is a considerable number of aeroplanes of little, if any, use, but on the other hand there is no doubt that Mukden has an overwhelming superiority over any Chinese opponents in aerial forces, and that the local Chinese realize the importance of aerial equipment in warfare. Whatever may be said of Marshal Chang's victory over Wu Pei-fu last autumn, so long as General Feng Yu-hsiang remains an important figure in Chinese politics and commands a large army which under present conditions must be regarded as an opponent of Marshal Chang, it will behoove Marshal Chang to continue to strengthen his army in every way possible so as to be prepared when the inevitable clash comes, and to this end the Mukden authorities are paying considerable attention to aviation.

“So far as I have been informed, nearly all the aeroplanes in Mukden are of French manufacture, and it is reported that the local Chinese were so impressed with the performance of Captain D'Oisy and of his aeroplane that they have ordered a considerable number of the same kind of machine which are now being brought out to China.”

CHINA

LIST OF CHINESE OFFICIALS

The following list of Chinese officials is believed to be correct as of February, 1925:

| Department | Name of officials |
|---|---------------------------------|
| Chief Executive..... | Tuan Chi-jui. |
| Premier (acting)..... | Tuan Chi-jui. |
| Minister of Foreign Affairs..... | Shen Jui-ling. |
| Vice Minister..... | Tseng Chung-chien. |
| Minister of War..... | Wu Kuang-hsin. |
| Vice Minister..... | Chia Teh-yuen. |
| Minister of Navy..... | Lin Chen-chang. |
| Vice Minister..... | Hsu Chen-ping. |
| Minister of Interior..... | Kung Hsin-chan. |
| Vice Minister..... | Wang Soong-yi. |
| Minister of Commerce and Agriculture..... | None. |
| Vice Minister..... | Liu Tze-chow (acting minister). |
| Minister of Education..... | Yi Pui-chi. |
| Vice Minister..... | Ma Su-lun. |
| Minister of Communications..... | Yeh Kung-cho. |
| Vice Minister..... | Cheng Hung-nien. |
| Minister of Finance..... | Li Shih-hao. |
| Vice Minister..... | Yen Chu. |
| Do..... | Chung Hsi-ming. |
| Minister of Justice..... | Chang Tze-chien. |
| Vice Minister..... | Wang Wen-pao. |
| Chief of General Staff..... | Li Lieh-chun. |

Tupans and Shengchang of the Provinces of the Republic of China

| Provinces | Tupans | Shengchang |
|-------------------|---|------------------|
| Chihli..... | Li Ching-lin..... | Yang Yi-teh. |
| Shantung..... | Tseng Shih-chi..... | Kung Chi-ping. |
| Honan..... | Hu Ching-yi..... | Mi Cheng-piao. |
| Shensi..... | Liu Chen-hua..... | Wu Hsin-tien. |
| Shansi..... | Yen Shih-shan..... | None. |
| Kansu..... | Lu Hung-tao..... | None. |
| Szechuan..... | Yang Shen..... | Teng Shih-hou. |
| Hunan..... | Chao Heng-ti..... | None. |
| Hupei..... | Hsiao Yao-nan..... | None. |
| Kiangsi..... | Fang Pen-jen..... | None. |
| Kiangsu..... | Lu Yung-hsiang..... | Cheng Chien. |
| Fengtien..... | Chang Tso-lin..... | Wang Yung-kiang. |
| Kirin..... | Chang Tso-hsiang..... | None. |
| Heilungkiang..... | Wu Chun-shen..... | Liang Shang-tao. |
| Kwangtung..... | Unsettled condition in Province under Kuomintang. | |
| Kwangsi..... | Chang Chi-wang..... | None. |
| Yunnan..... | Tang Chi-yao..... | None. |
| Kweichow..... | Wang Tien-pei..... | Peng Han-chang. |
| Sinkiang..... | Yang Tsen-hsin..... | None. |
| Chekiang..... | Sun Chuan-fang..... | Hsia Hsiao-lin. |
| Anhui..... | Wang Yi-tang..... | None. |
| Fukien..... | Chow Yin-jen..... | Sah Chen-ping. |

CHINA

POLITICAL NOTE

An American citizen temporarily residing in Shanghai has stated that Ataman Semenoff was at that time in that city, and that it was believed that he was living on money furnished by the Bolsheviki. Informant also stated that Semenoff was attempting to sell white Russian soldiers to any Chinese general who was in need of foreign assistance.

 ESTHONIA

NAVAL ORGANIZATION

The data concerning the Esthonian Navy in the 1924 Jane is accurate at the present time, with the exception of the additions and corrections noted below:

1. *Sulew*. This appears in Jane as an ex-German torpedo boat of the A class, former *A-32*. The following information gives details, which were not available at the time of compilation of the manual:

Dimensions as of other A ships, approximately identical with *A-21* and *A-25* (now allocated to Belgium).

Tonnage, 243.

Speed, 25 knots.

Armament: Two 75-mm. Canet guns, length 50 calibers (former Russian naval guns). Two 18-inch torpedo tubes (originally had one 18-inch tube).

Mines: Not determined whether she will carry any.

Fuel: Oil.

Builder: Schienau-Elbing, Königsberg.

The *A-32* was sunk in Kassar Bay (between Osel and Dagö Islands) in 25 feet water, late in 1917, about six months after completion. Probably struck a submerged rock; not sunk in action. Raised by the Esthonian Navy in July and August, 1923 (about two months' work). Repaired and refitted at Baltic Works, Tallinn, and ready for service in August, 1924. (No blue prints of her construction were available, nor could they be obtained from her makers, the Esthonian Navy Department making all repairs without foreign or commercial assistance.) Several minor articles of equipment, including the searchlight, are still to be installed. In excellent condition. Because she was an oil burner, the fuel in her engines when she was sunk prevented rust. Was used by Germany as a mine-sweeper and for antisubmarine work.

2. *Meeme*, lost in December, 1924, in mine-sweeping. *Mardus* (identical with *Meeme*) remains.

3. *Haryumaa* is not in the Esthonian Navy. Inserted by error by the publishers of Jane. The Esthonians never heard of it.

FRANCE

INSPECTION OF NAVAL AIR STATION AT ST. RAPHAEL

January, 1925

(Source M. I. D., U. S. Army)

On January 26, 1925, I inspected the naval air station at St. Raphael, Department of Var, on the Mediterranean. This station is the most important aviation base on the Mediterranean. In addition to the tactical units stationed there, it is also the site of the Commission for Practical Tests of Naval Aircraft, and the regional air park and regional reserve.

The school is commanded by Capitaine de Frégate Trucy. Detailed information concerning the units and the personnel of this station has been promised by the Ministry of Marine, and same will be forwarded on receipt.

The station consists of six large hangars arranged on three sides of a square, the sea forming the fourth side. There are also a number of miscellaneous buildings of semipermanent construction. Two of the hangars are of modern permanent type and four others are of corrugated iron on a steel frame construction somewhat similar to the American Expeditionary type. The regional reserve is stocked in two hangars and the air park in a third hangar. The C. E. P. A. (Commission for Practical Tests of Aircraft) occupies two hangars. The squadrons are housed in the other large hangar and some miscellaneous hangars. The air park is very poorly equipped. It has practically no machinery. No shops in the American sense existed. The woodworking shop and the engine overhaul shop were practically without machine-tool equipment, and apparently only minor repairs can be effected at this station. The equipment for launching and beaching aircraft consists of three cranes and one marine railway. The planes are lifted from the sea by crane and dropped on their trucks to save labor. It is said that the water is always smooth and the tide is not great. There is no provision for heating any of the buildings, and no gasoline distribution system. Aircraft are serviced by Bowser hand tanks.

Bombing squadron 301 is attached to this station. It is equipped with Blanchard type HB-3 flying boats. The authorized strength of this squadron is 12 aircraft; 9 were in commission, all new, 8

of which were pushers and 1 tractor. These aircraft carry the following legend on the rudder:

| | Pounds |
|------------------------|--------|
| Fuel load ----- | 1, 179 |
| Gasoline, 168 gallons. | |
| Oil, 20 gallons. | |
| Useful load----- | 2, 260 |
| Weight empty----- | 5, 710 |
| Total----- | 9, 149 |

Part of squadron T-402 is at present at St. Raphael. The authorized strength of this squadron is 9 Fargan F-60 bimotored Jupiter seaplanes. Seven seaplanes of this squadron have been put in commission at St. Raphael and have flown to their station at Bizerte (Tunis) on the African side of the Mediterranean. This seaplane carries a normal crew of 5 men—1 pilot, commanding officer who is navigator, observer-gunner, radio operator, and 1 or 2 mechanics. This seaplane has been fully described in previous reports and no details will be gone into here.

The only bomb sight visible was the old S. T. Aé sight, which is well known. The only unusual piece of equipment visible was the Bristol monocylinder engine starter.

Just back of the main quadrangle is a small airdrome for land aircraft. The airdrome is very small and very muddy. Two squadrons are housed in Besson eaux hangars on the edges of this airdrome—Reconnaissance squadron R-10, equipped with Breguet 14 A-2, and Pursuit squadron C-10, equipped with Nieuport 29 C-1 monoplane, pursuit type. In the center of this airdrome there is a concrete platform built for practice in deck landing.

There are a large number of miscellaneous aircraft in the C. E. P. A. hangars and in the various shops undergoing repairs or alterations.

The following aircraft were noted:

One Schreck 19 HM-B amphibian 300-horsepower Hispano Suiza engine.
Four Schreck 17 HTM-2 180-horsepower Hispano Suiza engine. Training seaplane.

One Farman F-60 seaplane with two Lorraine 400-horsepower engines.

For comparison with the Jupiter job, which is identical except for the engines, the following figures are taken from the plane, indicating the load carried:

| | Pounds |
|--------------------|---------|
| Weight, empty----- | 8, 047 |
| Fuel load ----- | 882 |
| Gas, 132 gallons. | |
| Oil, 12 gallons. | |
| Useful load ----- | 3, 384 |
| Total load----- | 12, 313 |

There are also 4 Spad type 42 training planes for land work, 1 LeO 13 flying boat with flexible hull, in test, 2 LeO 7 3s.

In the regional reserve hangar were 3 Farman F-60 with Salmson engines.

Loads carried by this type are as follows:

| | Pounds |
|---------------------|--------|
| Weight, empty ----- | 7,033 |
| Fuel load ----- | 1,433 |
| Gas, 211 gallons. | |
| Oil, 21 gallons. | |
| Useful load ----- | 2,877 |
| Total load ----- | 11,343 |

The Farman F-60 with the Lorraine engines was being used for torpedo tests. There are about 20 Whitehead 5-meter 18-inch torpedoes piled in this hangar. A new type bomb rack of an experimental nature was being attached to this seaplane. It was a very heavy and apparently crude affair, obviously handmade at the station.

There was no great amount of activity at this station on the day of my visit, and the station as a whole was not impressive. My visit was primarily to witness the competitive tests of a number of avions marins constructed for the French Navy. This airplane, which has been covered in previous reports, consists of a water-tight hull and a detachable landing gear. It is designed for either deck use in the case of the pursuit type or for seacoast observation and spotting work. The primary idea is to keep the airplane afloat for a considerable period of time in case of forced landing at sea. Airplanes of this type have been constructed by Levasseur, Mureaux, and Villiers, and all have been described in previous reports. None of these airplanes had yet arrived at the station, the contest having been postponed to allow them further time for initial tests at Villecoublay before proceeding by air to St. Raphael.

FRANCE

NAVAL NOTES

The French Mediterranean Fleet expect to fire target practice off Corsica the latter part of April. The entire fleet will fire at a rocky part of the Corsican coast.

The keel of the *Tourville*, 10,000-ton light cruiser, was laid at the government yard, Lorient, April 13, 1925.

GERMANY

ANTIAIRCRAFT FIRE CONTROL

While in Holland it was ascertained that the Zeiss Optical Co. of Germany had manufactured in Holland at Venlo (where they have a factory to get around the Allied Control Commission) an antiaircraft fire-control apparatus and that it was given to the Dutch Government on the understanding that it would only be shown to commissioned officers of the Dutch Navy. This apparatus was designed at Jena in Germany in the main offices of the Zeiss Co. and is said to represent their idea of a solution of the antiaircraft fire-control problem. While visiting the Zeiss works at Jena the following description and information on the apparatus were obtained. The Zeiss Co. seemed to be familiar with the main features of the French Routin apparatus and the Vickers gear by Mr. Gray. The Zeiss apparatus is called Berkog after the inventor.

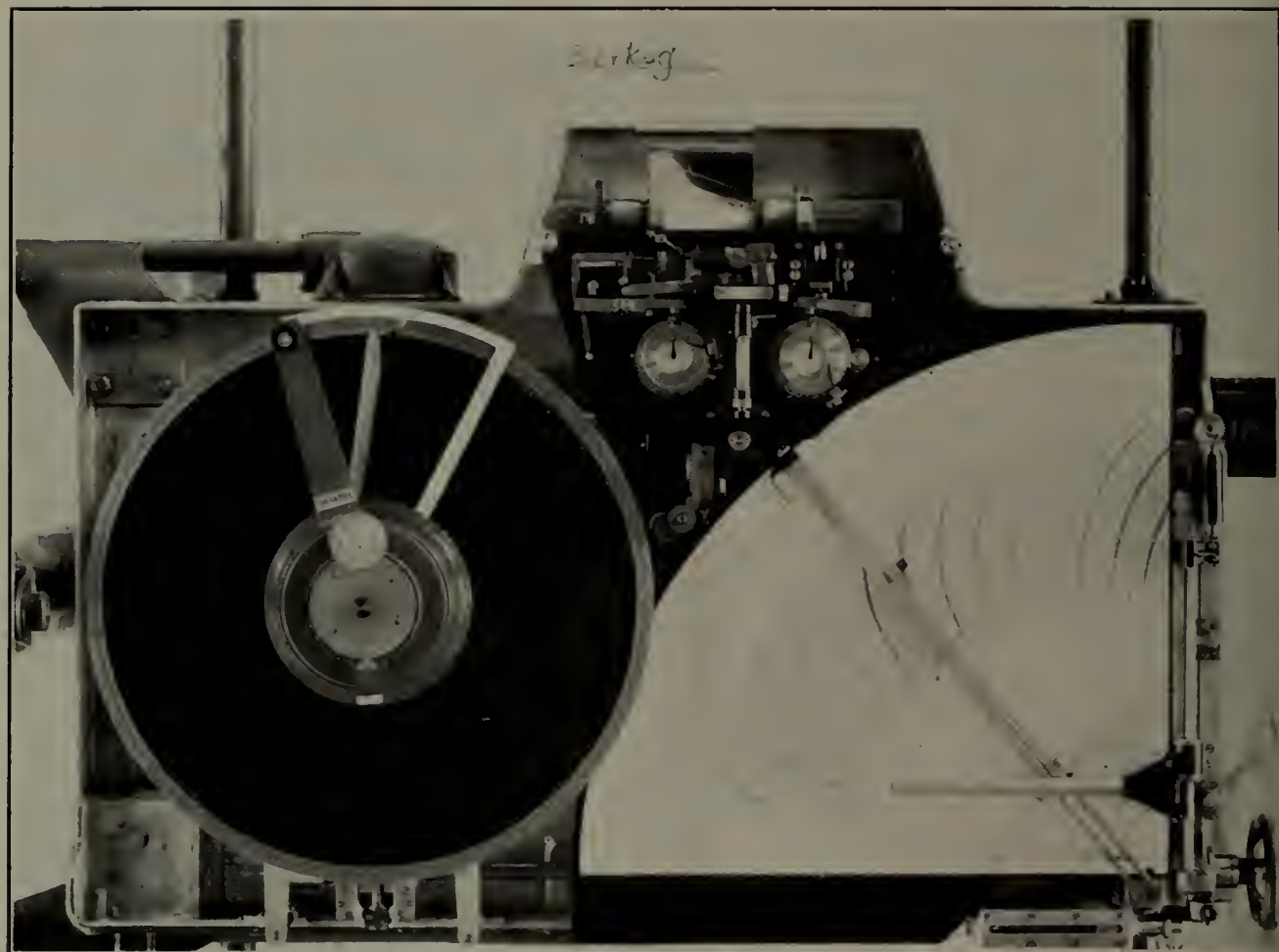
The apparatus is contained in a box attached to the mounting of a standard Zeiss, 4-meter base, Flack type, stereoscopic range finder. The box is approximately 1.16 meters by 0.70 meter, by 0.30 meter high, and weighs 280 kilogrammes. The range finder weighs 67 kilogrammes, and the mount, including electric battery, 70 kilogrammes, making total weight 417 kilogrammes or about 200 pounds. It looked as if it weighed more but they have made special efforts to use light construction and state that the weights given are correct.

The Berkog antiaircraft control apparatus is for indirect fire of guns and is used to determine the values of the elements of control such as the traverse of the gun, the gun elevation to the horizontal, the fuse-setting valves, and the firing point or time. The apparatus is designed on the assumption that during the period of measurement and the time of flight of the projectile (including the time for issuing commands and for loading the gun—dead time) the air target is taken as flying on a straight-ahead course at a constant velocity. This assumption is in most cases correct as the aviator is also bound by these requirements if he desires to make successful bomb hits or obtain satisfactory observations.

The instrument in question has the following characteristic:

The path of flight of the air target and its direction of vision (from the observation point) is represented as projected in a horizontal plane for the purpose of computing the values necessary for gun control mentioned above.

The lines of sight (that is, the connecting lines observation point to air target) therefore do not appear as true ranges but foreshortened, as so-called chart ranges (EK). EK is the cathete of a right-angled triangle (cathete is one of the sides containing the right angle in a right-angle triangle) of which the adjoining pointed angle (γ) (angle of target elevation or altitude) and the other cathete (H)



DIALS—BERKOG ANTI-AIRCRAFT FIRE-CONTROL APPARATUS

Fig. 1.

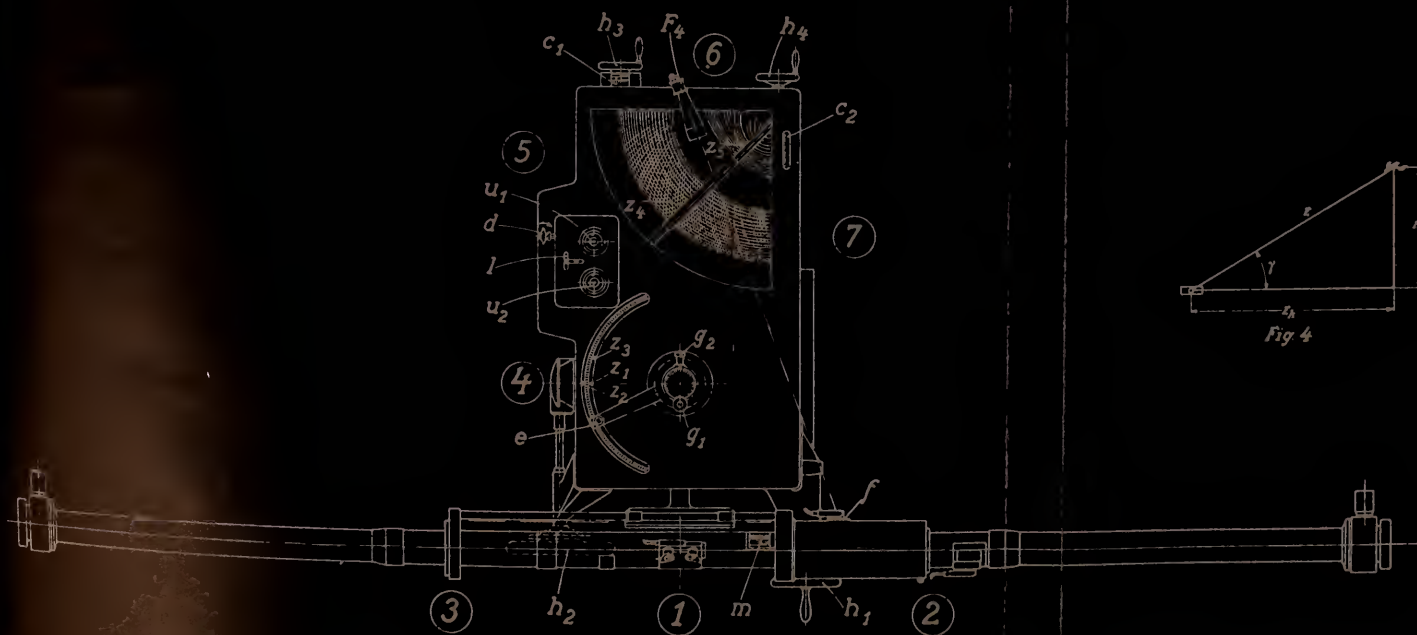
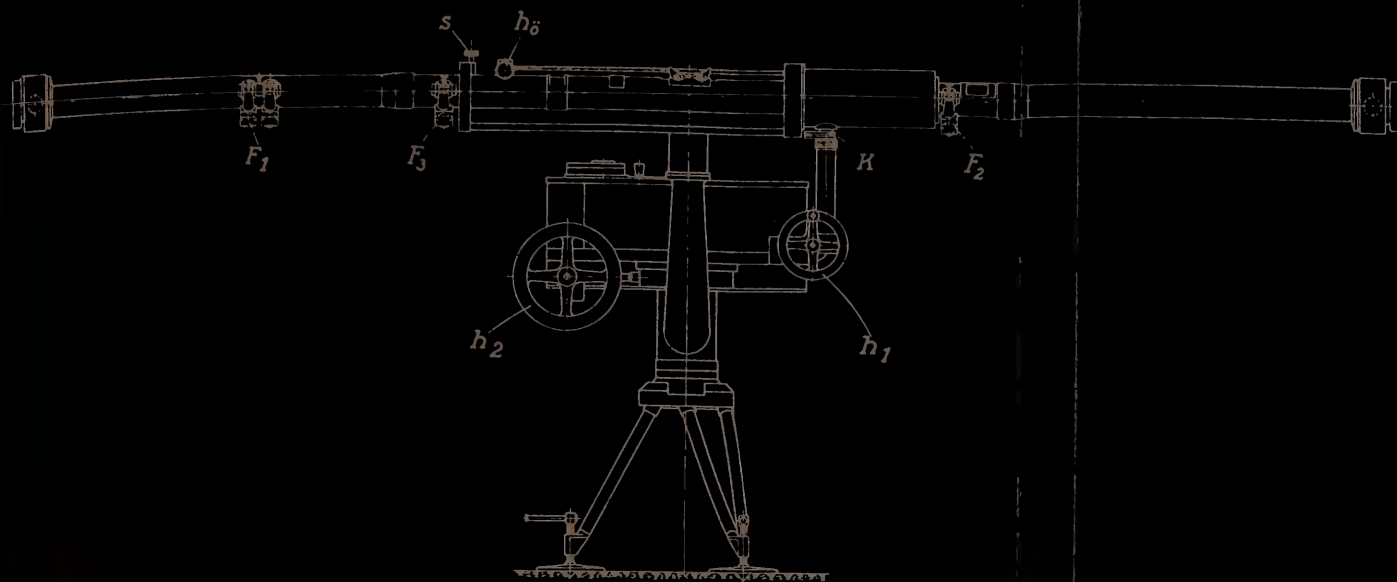
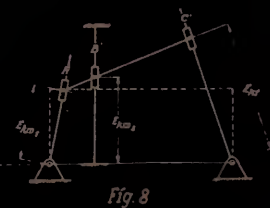
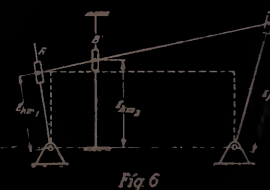
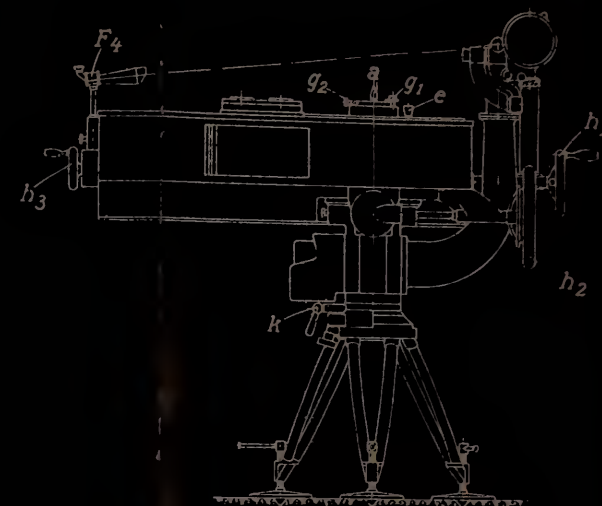


Fig. 2.

Fig. 3.



(flight altitude) are known. The flight altitude (H) is ascertained by means of a range finder which permits the flight altitude (H) to be read without the aid of a curve or table but dependent on the range of the air target (E_m) and the terrain angle (γ). The projection of the range of the air target (called chart range EK_m) is obtained by means of a triangular construction in which the flight altitude (H) is adjusted and held by means of a sliding of the carriage in the direction of the EK_m side of the triangle until the target angle of altitude is adjusted. This indicated by the cross in the telescope falling on the target.

Three positions of the air target are illustrated (see Figs. 5, 7).

(1) Beginning of observations, at point A.

(2) End of the observations, at point B.

(3) The position when the projectile strikes the air target, at point C.

The time in which the air target passes from B to C, as also the sum of the times for issuing commands and loading the guns and the projectiles' time of flight is for the time being still unknown. The measuring period in which the air target passes from A to B is taken as one-third of the time (this assumption is based on experience) while the time in which the air target passes from B to C is also still unknown. As the air target is assumed to be flying with constant velocity, the distance A-B is always a third as large as the distance B-C.

The time for issuing the commands and for loading is a constant value, for example, three seconds. On the other hand, the projectile's time of flight is dependent on the distance to the point of burst (Et), or, if the horizontal projection be examined again on (EK_t) and the altitude of flight (EK_t) is automatically adjusted according to amount and direction (Figs. 5 and 7) when the lever indicating EK_m is held stationary in extent and direction at the beginning of an observation, the EK_m-2 lever is also held at correct length and in the direction of the target. A third of the projectile's time of flight is transmitted continuously to a clock contact according to this (EK_t) value and the flight altitude, by means of a curved cam so that, after the expiration of a measuring period, this is reached by the indicator or hand of the clock and a current is therefore established. This sets another clock in operation which is set according to the time of operating the guns, and after the expiration of this time this second clock gives firing signal to the battery. During the time of issuing commands and loading, the guns are to be trained and loaded. The guns may be traversed to the EK_t lever or arm direct without considering the influence of the wind and the drift. However, these two influences should not be disregarded altogether. The deviation or drift of the projectile through the

influence of the wind is dependent on the latter's speed and direction and is taken into consideration by setting an "Exzenter" (corresponding to the wind speed and direction). These adjustments automatically correct or rectify the indicator on the graduated scale.

The influence of the wind on (EKt) can be indicated on a special knob.

The influence of the drift on the sight angle is dependent on (EKt) and the altitude of flight. The drift is read on the drift curve with an index guided automatically according to (EKt) and (H) and the scale turned to this amount. The elevation of the guns and the fuse setting are dependent on the altitude of flight (H) and the chart range of the point of burst (EKt) and are read on a gun elevation curve and fuse-setting curve by means of an index guided automatically according to altitude and (EKt).

It will thus be seen that the apparatus is based on obtaining observations during a short period of time, then assuming conditions noted will remain constant for a further period twice as long and the firing data are dependent on this assumption. The data obtained are used to set gun in elevation and train and set fuse and at a fixed time the guns are fired on signal. The apparatus is automatically reset to permit taking a fresh set of observations and the process can be repeated as many times as necessary. Also independent corrections dependent on the results of observation of the bursts can be made as necessary. The rapidity of fire and ease with which operations can be performed is stated to be very great.

The complete instrument consisting of three main parts is set up in a suitable place as near the antiaircraft battery as convenient. The apparatus which rotates on a vertical axis is turned by the horizontal strut or frame and fastened firmly to it, the range finder which rotates on its own horizontal axis is set up on this and coupled to the rotary transmission (training gear).

In order to be able to get the approximate direction on the graduated scale, the clamp (k) (see drawing) is released, the entire instrument together with the graduated scale is turned around to the desired position, and the clamp (k) refastened. The instrument is carefully leveled on the base by means of the cross spirit levels (l).

The rangefinder is operated by three men, numbered 1 to 3. Four other men are necessary for operating the fire control apparatus itself, numbered 4 to 7. The man who measures the range or height (No. 1) only operates the measuring roller (m) on the rangefinder and when necessary, a rectifying knob in order to get fine adjustment of the E mark opposite the observation telescope so that the E mark is in the very best position with relation to the target (for stereoscopic vision). The elevation man (No. 2) follows the path

of the target by turning the hand wheel (h1) with his eye at the 8-power telescope (F2), whose optical axis is adjusted parallel to the axis of the rangefinder observer. No. 2 also adjusts the angle of altitude of the target. The trainer (No. 3) follows the target in its lateral path by turning the handwheel (H2) while looking through the 8-power telescope (F3), whose optical axis is adjusted with that of (F2). This operation turns the entire apparatus on the graduated scale which is firmly fastened to the strut or frame. The ranges obtained by the range taker (No. 1 man) are indicated on the rangefinder as flight altitudes and are read by No. 6 on the window of the range finder by means of a 12-power reading telescope (F4), and by means of the hand wheel (h3) are switched into the instrument by using a scale graduated for altitude.

The two values, altitude and angle of terrain, furnish the chart range (EKm) belonging thereto. This variable value (EKm) (for example, 500 or 8,000 meters) is adjusted simultaneously on all three EK levers or arms. It should be noted that for reasons of construction, the three (EK) levers are not shown as starting from a common point—the point of observation—in the instrument in question, but that the starting points of the (EK) levers lie a little to the side of one another (Figs. 6–8) in such a way that the distance of the starting point of (EKM1) up to that of (EKM2) is a third as large as the distance of the starting point of (EKM2) to that of (EKt). The point B is now equivalent to the point B¹ and point C to point C¹, and AB¹ still remains a third of B¹ C¹.

Man No. 6 follows the air target and the altitude continuously. When the altitude of flight is seen to be constant, the chief gunner gives the signal to start taking observations. Man No. 5 switches an electric brake coupling on the lever (1) which holds the (EKM1) lever in its position and length. At the same time a stop watch (V1) is put into operation. As the (EKM2) lever is held continually to the correct value and direction with relation to the air target during the time of measurement, the third lever (EKt lever) adjusts itself according to extent and direction. The direction of the (EKt) lever is shown on the graduated scale by the indicator (Z1). According to need, the wind velocity and direction are set on the knobs (G1) and (G2) by man No. 4, and pointer (Z1) is kept constantly covered by pointer (Z2) by turning the lever (1) to the amount of the wind correction. Man No. 6 reads the drift continuously on the drift curves with the pointer (Z5) and sets this on the handwheel (h4) according to the drift scale (C2), this turns the graduated scale to this amount. Indicator (Z3) shows the corrected site angle on the graduated scale, corrected for both wind and drift; this is read by man No. 4 and communicated to the guns at short intervals by means of a telephone.

Man No. 5 at intervals reads the existing angle of elevation on the altitude curves by means of the pointer (Z4) while man No. 7 reads the fuse settings on the same indicator using the red curve. Both these values are also continuously communicated to the guns.

The time of measuring corresponding to the size and direction of (EKt) are continuously transmitted to the clock contact. As soon as the measuring indicator touches the contact, the measuring period which has been correctly estimated for (EKt) beforehand expires: the brake coupling is released so that the two levers (EKM 1) and (EKt) again fall back to the last adjustments of (EKm) in size and direction. At the same time a second watch (V2) is set in operation which was previously set by man No. 5 according to the time of issuing the order to start and the loading of the guns. After the expiration of this loading time, a second contact is turned on whereby a signal (buzzer) for the firing is given to the guns by means of a relay.

One especially notable point in the Berkog apparatus is the fine coupling of the range finder with the control apparatus which greatly simplifies spotting and locating exactly the same target by all hands, including the officer in charge of the antiaircraft battery. There is no necessity for connecting up the control apparatus and the range finder, which formerly involved such tremendous difficulties and made large errors possible. Besides the mechanism is simplified as there is only one training and elevating gear for all spotting glasses and range finder. A further development in the new modified Berkog apparatus is the rectifying mechanism for all atmospheric influences and drift. Furthermore, there is a parallax cut-out which after adjustment of the range and direction of the battery center by Berkog automatically rectifies the point of burst of the projectiles. The modified Berkog also has a device by means of which the path followed by the airplane is indicated so that it is very simple to ascertain the character of flight. Furthermore, this device makes it much easier for the officer in charge of the anti-aircraft firing to undertake independent corrections, as guided by these indications he can shift the point of burst on the trajectory. A further important point of this improvement is that the variations in altitude of the aviator can be seen and advantage taken of moments when the flight is steady and continuous.

In addition to the telephone, arrangements can be made on the modified Berkog to transmit all necessary commands to the guns by an electric transmission system to visual indicators of the follow-the-pointer type. For mounting on board ship the apparatus must be provided with means of indicating the true horizontal in addition to the devices described above.

GERMANY

A VISIT TO THE ZEISS OPTICAL WORKS AT JENA

March, 1925

A visit was made to the Zeiss Optical Works in Jena. At the present time they employ a total of 4,300 men; of these about 1,100 are officials, technical experts, professors, etc. In war time the personnel can be expanded to 14,000. A small force of about 25 men is employed to repair range finders and other optical instruments belonging to the German Government. This is permitted by the treaty of Versailles. All other work is nonmilitary in character.

Work of the latter kind is done by the N. V. Nederlandsche Instrumenten Compagnie, the office of which is at Javastraat 44, The Hague, and the factory at Molensingelstraat 9, Venlo, Holland.

At Jena they are much interested now in experimenting with the "Planitarium." Unfortunately the mechanism was out of order and they could not show the working of it to me. Its main purpose is educational and it will probably be a very good thing for our Naval Academy as well as nautical schools and other schools where the science of navigation is taught. It is, however, a very expensive affair; the instrument, including the building, will cost about \$150,000.

Another instrument they are developing is the "Stereoplanograph," which can be used for making contour charts from airplane photographs. Airplane cameras as well as surface cameras for this purpose are also manufactured.

They showed the plan of their latest type of submarine periscope of which the novel features are: (a) A target distance estimator; (b) a course angle estimator; (c) a gyro compass repeater for torpedo firing; (d) a camera installation for taking photographs through the periscope. All of these are installed at the base of the periscope. A more detailed description of the distance estimator and the course angle estimator is forwarded separately. The size of the periscope is now 6 inches at the bottom and the upper part tapers to 50 mm. at the top (or 2 inches), some of them tapering to 31 mm. The length is 7 meters; some are as long as 9 meters; variable power, 1.5 to 6. The later type periscopes are also fitted for taking vertical observations for use against airplanes. This type has a circular object glass, and by means of the interior movable reflector a range of 90° from the horizontal can be obtained instead of 40° as formerly. The upper part is enlarged for this purpose from 50 mm. in diameter to 65 mm. and is no longer a true bottle shape.

I was told that a short time ago 15 periscopes which had been completed at the Venlo factory were lost at sea but had been paid for and were replaced at the expense of the purchaser. The name of this purchaser could not be obtained.

GERMANY

MISCELLANEOUS NOTES

New Junkers airplane

A new large airplane manufactured by the Junkers Works was tested March 17 on the Tempelhof Field. This new type has three motors with three propellers, while all the other Junkers machines have been made with one motor and one propeller. This new arrangement will therefore increase both speed and factor of safety. If one motor fails the other two will be sufficient to continue the flight.

The entire machine is made of metal and will be manned by two pilots in place of one, which, viewed objectively, also adds to the safety, and therefore, subjectively, has a favorable effect on the passengers.

This type can carry ten passengers in place of six, as formerly, the cane chairs being arranged as in an autobus. The size of the machine insures steadiness and no movement was perceptible during the trial flight.

This type will be introduced at an early date in the regular Junkers service—to Helsingfors, Oslo, and London in the north, and Lyon and Bucharest in the south.

A project to convert the Potsdam airship field into a landing place for seaplanes

A project is under way to convert the old Zeppelin air port on the shores of Lake Templin, an indentation of the Havel near Potsdam, into a commercial air port for the use of seaplanes. The middle of February, officials of the Province of Brandenburg and the city of Potsdam, as well as representatives of aviation companies, inspected the ground as to its fitness for a seaplane port. Tests were also made in landing and taking-off a seaplane, as well as in landing and taking on passengers from a small motor boat, all of which tests were entirely satisfactory. Every portion of the lake was tried out and the whole territory thoroughly inspected. Some objections have been raised as to the projected air port's distance from Berlin, but

as it has direct tram connection with Potsdam and railroad connection with Berlin (station: Charlottenhof-Potsdam), it is not believed that this objection will hold, all the more so as there is no other locality nearer Berlin that is so admirably suited in every way for this purpose. The Hermannswerder Hospital, which is situated on a small isthmus projecting into Lake Templin, has also raised objections on the ground that the noise of the motors will disturb the patients; however, there never was any trouble in this connection when the air port was used for Zeppelins, so it is not thought likely that it will stand in the present instance.

Nothing definite was decided at the time, but as the opening of such a port would be of immense value to Berlin the ultimate decision in favor of such action can only be a matter of time.

Reichstag committee hearing on naval budget

Representative Creutzburg (Communist) proposed the cancellation of all single disbursements for new ship constructions, artillery, and torpedo armament. In making this proposal, he stated that the Communists were not fundamentally opposed to national defense provided the working classes held the reins of government but the Communistic Party had no interest in defending the capitalistic state.

Representative Künstler (Socialist) stated that he did not wish to advocate any new armament but would only like to draw attention to the fact that the Soviet Army would probably look with favor on a military agreement with Germany if the German forces were only a little larger. For this reason he was unable to understand the logic of the communistic assertions.

Representative Doctor Haas (Democrat) also emphasized the illogical reasoning in the communistic assertions.

Representative Schöplin (Socialist) asked the Minister of Defense what was the idea of the fleet anyway—it was much too small to have any real military value and required a considerable amount of money to keep it up and in condition.

The chief of the Navy Department, Admiral Zenker, stated in reply that naturally the German fleet was in no position to compete with the navies of other countries, but the navy should neither forget how to construct ships nor should naval maneuvers be allowed to fall into neglect. But even so, the Germany Navy should not be a purely model navy and an instrument of maneuvers but it should protect the German coasts and German neutrality as well as acting as representative of Germany in foreign and distant waters.

Representative Brüninghaus (German People's Party) stated that the navy yard workmen were of an entirely different point of view than the Communist representative. These workmen forwarded a resolution to the Reichstag in which they requested the latter to approve the naval constructions so that they would have work and wages.

The committee passed the appropriations for new constructions and armament as well as for the needs of the navy yard in Wilhelmshaven, the arsenal in Kiel, the artillery administration, the torpedo and mine divisions, and the maintenance, etc., and dismissed the budget.

At the close, in response to a question raised by Representative Künstler (Socialist), it was shown that Admiral Tirpitz received no papers or documents from the navy archives to assist in the preparation of his work on the naval events of the war.

GREAT BRITAIN

PERSONNEL OF ROYAL AND DOMINION NAVIES

April 1, 1925

The following recent information concerning the strength of personnel of the Royal and Dominion navies has been received:

I. Personnel of the Royal Navy on April 1, 1925

[The numbers do not include: (a) Personnel of the Royal Navy lent for service in the Dominion Navies, etc. (b) Personnel of the Dominion Navies under training in the Royal Navy]

| | Vote A | | Unemployed | | Reserves | | Total | |
|---|----------|---------|------------|---------|----------|---------|--------------------|---------------------|
| | Officers | Ratings | Officers | Ratings | Officers | Ratings | Officers | Ratings |
| Royal Navy: | | | | | | | | |
| Active service..... | 7,914 | 81,116 | 229 | ----- | ----- | ----- | 8,143 | 81,116 |
| Retired officers and pensioners.... | 14 | 277 | ----- | ----- | 7,794 | 18,763 | ¹ 7,808 | ² 19,040 |
| Royal fleet reserve..... | ----- | ----- | ----- | ----- | ----- | 25,924 | ----- | 25,924 |
| Royal naval reserve..... | ----- | ----- | ----- | ----- | 1,461 | 7,251 | 1,461 | 7,251 |
| Royal naval volunteer reserve..... | ----- | ----- | ----- | ----- | 320 | 3,376 | 320 | 3,376 |
| Royal naval auxiliary sick berth reserve..... | ----- | ----- | ----- | ----- | ----- | 1,275 | ----- | 1,275 |
| Shore signal and W/T service: | | | | | | | | |
| Active service..... | 3 | 183 | ----- | ----- | ----- | ----- | 3 | 183 |
| Retired officers and pensioners.... | 33 | 144 | ----- | ----- | ----- | ----- | 33 | 144 |
| Royal marines: | | | | | | | | |
| Active service..... | 433 | 9,783 | ----- | ----- | ----- | ----- | 433 | 9,783 |
| Retired officers and pensioners.... | 3 | 63 | ----- | ----- | 660 | 3,991 | ¹ 663 | ² 4,054 |
| Royal fleet reserve..... | ----- | 7 | ----- | ----- | ----- | 3,522 | ----- | 3,529 |
| R. M. police: | | | | | | | | |
| Retired officers and pensioners.... | 7 | 280 | ----- | ----- | ----- | ----- | 7 | 280 |
| Total..... | 8,407 | 91,853 | 229 | ----- | 10,235 | 64,102 | 18,871 | 155,955 |

¹ Of all ages.

² Under 55 years of age. R. F. R. men, class "A" (pensioners) are not included.

II. Personnel of the Dominion navies, and of the Royal Indian Marine, on April 1, 1925

| | Dominions and R. I. M. personnel | | | | | | Royal naval personnel serving in Dominion navies (not included in previous columns) ¹ | |
|---|-----------------------------------|---------|------------------------------------|---------|---------------------------|---------------------|--|------------------|
| | Serving in Dominion, etc., navies | | Serving in Royal Navy ¹ | | Total Dominions personnel | | Officers | Ratings |
| | Officers | Ratings | Officers | Ratings | Officers | Ratings | | |
| Australia: | | | | | | | | |
| Active service— | | | | | | | | |
| R. A. N. | 247 | 3, 224 | 115 | 22 | ² 362 | ³ 3, 246 | ² 74 | ³ 356 |
| R. N.—Active service | | | | | | | | |
| R. N.—Retired officers and pensioners | | | | | | | ² 20 | ³ 37 |
| R. N.—Emergency list | | | | | | | ² 1 | |
| Total | 247 | 3, 224 | 115 | 22 | 362 | 3, 246 | 95 | 393 |
| Active reserves | | | | | ³ 158 | ³ 4, 670 | | |
| Inactive reserves | | | | | ³ 196 | | | ³ 240 |
| Canada: | | | | | | | | |
| Active service— | | | | | | | | |
| R. C. N. | 42 | 331 | 22 | 39 | ² 64 | ³ 370 | ² 8 | ² 14 |
| R. N.—Active service | | | | | | | ² 1 | |
| R. N.—Retired officer | | | | | | | | |
| Total | 42 | 331 | 22 | 39 | 64 | 370 | 9 | 14 |
| Reserves— | | | | | | | | |
| R. C. N. R. | | | | | ³ 21 | ³ 78 | | |
| R. C. N. V. R. | | | | | ³ 45 | ³ 610 | | |
| New Zealand: | | | | | | | | |
| Active service— | | | | | | | | |
| N. Z. N. F. | 6 | 249 | | 41 | ² 6 | ³ 290 | | |
| N. Z.—R. F. R. | | 1 | | | | ³ 1 | | |
| R. N.—Active service | | | | | | | ² 35 | ² 298 |
| R. M.—Active service | | | | | | | ² 1 | ² 56 |
| Total | 6 | 250 | | 41 | 6 | 291 | 36 | 354 |
| Active reserves | | | | | | ³ 67 | | |
| Inactive reserves | | | | | | ³ 90 | | |
| South Africa: | | | | | | | | |
| Active service— | | | | | | | | |
| S. A. N. S. | 6 | 93 | | | ² 6 | ⁴ 93 | ² 3 | ² 22 |
| R. N.—Active service | | | | | | | ² 6 | |
| R. N.—Retired officers | | | | | | | | |
| Total | 6 | 93 | | | 6 | 93 | 9 | 22 |
| Reserves | | | | | ⁵ 18 | ⁵ 581 | | |
| India: | | | | | | | | |
| Active service | 167 | 1, 170 | | | ² 167 | ⁶ 1, 170 | | |
| Reserve | | | | | (?) | (?) | | |

¹ The numbers in these columns are not included in those shown in Statement I.

² On Mar. 31, 1925.

³ On Mar. 31, 1924.

⁴ On Jan. 31, 1925.

⁵ Approximate numbers.

⁶ Estimates 1924-25; no other figures are available.

⁷ Not known.

⁸ Pensioners R. N. and R. M.

GREAT BRITAIN

Distribution of British Regular Army forces January 1, 1925

| | Regular Army, including British Army, colonial units and Indian Army troops borrowed | | |
|---|---|---------|---------|
| | Officers | Men | Total |
| Great Britain..... | 7,125 | 102,138 | 109,263 |
| Northern Ireland district..... | 300 | 4,490 | 4,790 |
| South Irish coast defenses..... | 66 | 791 | 857 |
| Rhine..... | 411 | 8,223 | 8,634 |
| Egypt..... | 505 | 10,679 | 11,184 |
| Sudan..... | 88 | 2,625 | 2,713 |
| Palestine (including British troops administered by the Air Ministry and excluding Indian Army troops borrowed by the Air Ministry)..... | 10 | 111 | 121 |
| Iraq..... | 68 | 1,583 | 1,651 |
| Cyprus..... | 6 | 108 | 114 |
| Africa, West..... | 21 | 231 | 252 |
| Bermuda..... | 34 | 516 | 550 |
| Ceylon..... | 18 | 239 | 257 |
| China, North..... | 35 | 939 | 974 |
| China, South..... | 83 | 1,340 | 1,423 |
| China, South..... | 15 | 769 | 784 |
| Gibraltar..... | 104 | 1,902 | 2,006 |
| Jamaica..... | 45 | 609 | 654 |
| Malta..... | 119 | 1,627 | 1,746 |
| Mauritius..... | 11 | 119 | 130 |
| Straits Settlements..... | 67 | 1,161 | 1,228 |
| Miscellaneous..... | 276 | 443 | 719 |
| India and Aden..... | 3,389 | 58,005 | 61,394 |
| Colonial units of British Regular Army..... | 64 | 2,207 | 2,271 |

¹ Indian troops borrowed.*The Sudan defense force*

According to late information which has appeared in the press, the following will be the approximate strength of the proposed Sudan defense force:

| | |
|-----------------------|--------|
| Regular troops..... | 4,300 |
| Irregular troops..... | 6,800 |
| Reserves..... | 6,500 |
| Total..... | 17,600 |

The regular force is to be composed of six Sudanese infantry battalions, two of which are to be reduced to a provisional strength of two companies. The organization and strength of the so-called battalions will be similar to the present organization of a British infantry regiment. The personnel of this force will be composed of natives with the exception of the battalion and company commanders, who are to be British.

The irregular troops will include the Camel Corps, the Eastern Arab Corps, the Western Arab Corps, the Equatorial Battalion, the cavalry and mounted rifles, and the pack machine-gun batteries. The cavalry and mounted infantry are composed of a squadron of Sudanese cavalry mounted on native horses. Two companies of mounted rifles mounted on Abyssinian mules. One company of

mounted rifles mounted on horses and a machine-gun squad. There is also a machine-gun battery of eight Vickers guns. All these units are commanded by British officers.

The reserve is to consist of 12 companies formed from old soldiers of the Sudanese Army.

GREAT BRITAIN

INSPECTION OF BRISTOL AEROPLANE CO. (LTD.)

The plants of the Bristol Aeroplane Co. (Ltd.) were inspected in March, 1925. These plants are located at Filton, 7 miles north of Bristol and about 120 miles west of London. The establishment is divided into three parts, (1) aerodrome, (2) an airplane plant, (3) engine plant.

The aerodrome was acquired during the war for the purpose of testing the company's airplanes, and while it is small it is well equipped with large substantial hangars. At the present time it is being used for the test of airplanes and also as a reserve officers' training school operated by the Bristol Co.

The airplane plant is located about one-half mile from the aerodrome. It is very extensive, and its buildings and equipment are modern and fairly well constructed. This plant at the present time employs about 1,000 men, but there appears to be sufficient space and equipment for at least three times that number. It is engaged principally in the overhaul and reconditioning of Bristol "Fighters," but certain experimental construction is also being carried on. The officials stated that this construction was of a secret nature, and no opportunity was given to see it. However, it was learned from the designer, Captain Barnwell, that part of the experimental construction was the development of all-metal types and sufficient information on this subject was gathered to form the conclusion that methods of construction of these types were almost identical with those employed in the construction of the Armstrong-Siddeley "Siskin" 4 and 5, except that chrome nickel steel is used in the building of the box spars. The types of airplanes being constructed could not be ascertained, but it might be pointed out that the Bristol Co. has not turned out a successful type since the Bristol "Fighter," which came out in the spring of 1917. No important changes have been made in the designing staff; therefore it is doubtful that the new types will be of any great interest. The organization and shop methods of the airplane plant were not particularly impressive, and it is believed that this plant is a charge on the company which is offset by the profits of the engine plant.

The engine plant is located on the edge of the aerodrome. It has well-built buildings equipped with modern American machine tools. This plant was engaged during the latter stages of the war in the building of hulls for small flying boats, and when converted into an engine-building plant was completely reequipped. Five hundred men are employed, and it was stated that the output of "Jupiter" engines for the last year was 137, to say nothing of a considerable number of "Lucifers," "Cherubs," and Bristol gas-engine starters. It was further stated that the capacity of the plant with its present equipment was considered to be 200 "Jupiters" per year. Mr. A. H. R. Fedden, the designer of the "Jupiter" and the head of the designing staff, personally conducted the inspecting officer through the plant, and an opportunity was had to discuss various developments in the air-cooled engine, which developments will be discussed in detail in a later part of this report. No money has been spared in equipping the plant, not only for rapid and efficient manufacture of engines, but also for testing those engines. There were three test stands, each equipped with water brake and a most elaborate arrangement for air cooling. This arrangement in each case consisted of a circular air tunnel with the engine mounted at the suction end and a large electrically driven blower at the exhaust end. The suction end was built in a telescopic manner so that it could be pulled out to cover the engine or pushed back entirely clear. The equipment of the test house also included stands for single cylinder tests and modern recording equipment, such as R. A. E. engine indicators, distance-reading thermometers, flow meters, etc.

The plant is now engaged in completing an order for 77 "Jupiters," 50 "Cherubs," and a small but unknown number of "Lucifers." Mr. Fedden stated that when the present order of "Jupiters" was completed they would start on the production of what is known as a "Series V Jupiter." This new engine is of the same general construction as the present series but the over-all diameter has been reduced from 55 inches to 51½ inches and it is designed to run at considerably higher revolutions. The horsepower at full throttle, 1,825 revolutions, is said to be 515. The crank shaft of the "Series V" is a built-up rather than a solid one. It was stated that the particulars of construction of this crank shaft were very secret and no opportunity was had to see one at close range. In connection with the discussion of crank shafts, Mr. Fedden stated that they had experienced great difficulty in the development of the "Jupiter" engine in that although the crank shafts were designed heavier and heavier they experienced one breakage after another. It was finally ascertained that this was due to the peculiar characteristics of a

single-throw crank shaft as set on a radial engine, and that various data in regard to crank shafts for cylinders in line engines did not apply in that the question of synchronous vibration was far more serious with a radial engine. He accounted for this by the fact that in the crank shafts with several throws the wavelike vibration set up in the crank shaft more or less interrupted the synchronous vibration, and it was, therefore, not necessary to have such a large space measured in terms of revolutions between the actual engine running speed and critical speed in the cylinders in line engines, as it was in the radial engines. He stated that he had found it necessary in the "Jupiter" to have at least 350 revolutions between running speed and critical speed and that for reasons of safety he now designed for practically double this amount. The "Series V" crank shaft is designed for a critical speed of 2,600 revolutions.

Duralumin drop forgings are now being used for engine shaft cases instead of aluminum castings. These forgings are made by the River Don Vickers Works and are said to be highly satisfactory. The cost of a cast aluminum casing, as manufactured by the Bristol Co., was said to be £34, whereas the drop-forge casings cost £95, but more than two-thirds of the castings were rejected, in some cases not until after a large amount of machining had been done, whereas so far not a single drop forging had been rejected. It was therefore claimed that the drop forging was cheaper in the long run and further claimed that they were far more uniform in character and of greater strength. Drop-forged pistons made by the same company are also being used for the same reasons as set forth in regard to the casings and with the same result.

The method of casting on aluminum cylinder heads, as mentioned in N. A. report No. 923 of July 2, 1923, was an experiment said to have been forced on the company by the Air Ministry but was found almost impracticable and inordinately expensive, hence was abandoned. No complete engines were fully constructed with this type of cylinder head, as the Royal aircraft establishment was unable to turn out a complete satisfactory set of such cylinders.

In connection with the difficulties experienced with radial engines in night flying, [April, 1925 Bulletin, p. 30] the conversation was led around to the question of exhaust rings and it was found that the company was working very hard on this subject. A great deal of time and money has been spent and a large number of types of rings of various materials and forms were seen. The latest and most satisfactory type was made of Firth "Staybrite" steel. This ring is sufficiently small in diameter to bring it practically clear of the V's between cylinders and hence adds very little to the head resistance. It is 4 inches in diameter and practically circular in cross section, and the exhaust pipes

from the cylinders point directly in like the spokes of a wheel. These exhaust pipes are fitted with slip joints at each end to take care of expansion and contraction. There are two discharges from the ring on each side of the bottom. No welding is used in the construction of either the exhaust ring or discharge pipes from cylinders, the entire job being riveted. Mr. Fedden stated that they had found this absolutely necessary as the welding would not stand up under the changes in temperature. He further stated that in all the experiments it had been considered that the maximum temperature at any point in the ring should not exceed 400° centigrade as any temperature above this point would probably cause a fire in case of a crash, such a fire being produced by incandescent foreign particles such as burnt oil, blades of grass, etc., on the exhaust system.

Examples of the so-called "helmet" form of cylinder cowlings were seen and these "helmets" were also arranged to take care of the flashing effect of the exhaust. The front of the "helmet" was more or less parabolic in form and contained a mechanically operated shutter. The top extended up over the top of the cylinder and on back for about a total length of 14 inches. The two exhaust pipes led up into an exhaust chamber in the top of the "helmet" and on back to the rear end where there were a large number of long, narrow slits to let out the exhaust gases. This form of exhaust was said to be entirely suitable as regards flash effect, resulted in a very small loss of horsepower and was fairly simple of construction. The entire "helmet" was built of stainless steel. Mr. Fedden stated that he considers the "helmet" type of cowlings as being the logical development as the present system with the heads of cylinders exposed was very unsuitable at high altitudes in that the engine cooled very quickly unless operating on at least half throttle, and there had been many cases of engine failing to pick up after throttling. The shutters of the "helmet" were all operated by the partial revolution of a single ring to which nine bell-crank levers were attached.

The "Jupiter" engine, to which a supercharger was being fitted, was seen, but as this apparatus was regarded as being extremely secret there was not much opportunity to make a close examination. The supercharger was of the exhaust rotor type and it was particularly noted that the carburetors were on the suction side of the supercharger. The whole apparatus was carried beneath a bracket mounted at the rear end of the engine, the lower part of the rotor being braced by stays to the crank case. The rotor case was about 13 inches in diameter and it was stated that the rotor revolved at 27,000 revolutions per minute. It was further stated that the entire apparatus weighed 125 pounds and that preliminary tests indicated

it would maintain a maximum full horsepower up to 17,500 feet. The manifolding from supercharger to cylinders was not in place. The method of regulating the pressure was not seen.

The question of the Bristol variable timing gear was discussed with Mr. Fedden and he stated that this gear had been giving excellent service and had met with the approval of the Air Ministry. He further stated that an engine equipped with variable timing gear maintained its full horsepower up to 10,000 feet and showed a set of curves to substantiate this statement. There was no engine rigged with the variable time gear in the plant at the time and the details could not be seen. It was learned, however, that the gear only added $3\frac{1}{2}$ pounds to the weight of the engine and that it could be put on any "Jupiter" in a very short space of time.

Inquiries were made in regard to the use of 12 mm. or miniature spark plugs. Mr. Fedden stated that the single-cylinder tests with this type of plug have been entirely satisfactory but he had found it necessary to make certain modifications in the plug as originally furnished by the Robinhood Co. This company is now building plugs to a new specification which he considered would be entirely satisfactory. The miniature plugs have been used with success on the "Cherub" engine and also on the standard "Jupiter" designed for the big plug fitted with adapters. No engine had yet been built to take the small plug, and I gathered that this was because the Air Ministry is not yet convinced in regard to the matter.

It was learned that the Bristol Co. is undertaking the development of radial air-cooled heavy oil engines and are working along the lines of 100-horsepower cylinders. This development has not proceeded very far and it will probably be two or three years before even an experimental engine is produced.

GREAT BRITAIN

ENGINE DEVELOPED BY THE ARMSTRONG-SIDDELEY CO.

It has been learned that the Armstrong-Siddeley Co., of Coventry, is bringing out an improved "Jaguar" engine in answer to the Series V Jupiter (described in preceding article). The improved "Jaguar" is to have an over-all diameter of just less than 40 inches, as against an over-all diameter of 43 inches in the present "Jaguar." The cylinder arrangement is to be the same, and increased horsepower is evidently obtained by increased revolutions. The manufacturers hope to eventually obtain 500 horsepower from the improved type of engine.

Questions were asked in regard to the progress being made with the "Leopard" 700-horsepower radial engine as previously reported. It was stated that development was progressing very slowly, as the main attention of the company was being devoted to the new "Jaguar." When asked as to the proposed use of the "Leopard" it was stated that it was regarded as being a particularly desirable type for a single-engined torpedo plane, inasmuch as the Admiralty proposed to adopt a much larger torpedo than the type now in use, which is 18 inches in diameter. The informant professed ignorance as to the dimensions or weight of the new torpedo, but appeared to think that it was something approaching twice the size of the present type. In view of the secrecy regarding all Admiralty developments, it is not believed that many details regarding this torpedo can be obtained until it is practically ready for service issue. It was stated that the new torpedo is being developed by Armstrong Whitworth, and that it has a new feature of a bayonet-joint method of attachment of head and afterbody instead of the usual countersunk bolts.

GREAT BRITAIN

A VISIT TO WORKS OF MESSRS. VICKERS (LTD.)

A visit was made to the works of Vickers (Ltd.), Barrow-in-Furness. This company has the contract for the light cruiser *Cumberland*, but so very little engineering work is now in the shops that practically nothing could be definitely identified. Her boiler drums were noted and were approximately 54 inches in diameter, 15 feet long, and of rather light plate, indicating a comparatively low pressure.

The propelling machinery for a Japanese destroyer is building at these works. They are two shafts, single-reduction, 20,000 horsepower each, gear revolutions 400, and consists of a high and low pressure Brown-Curtis turbine for each shaft. There was no cruising turbine. The turbine blading was of stainless steel. The exhaust from the L. P. turbine was up. The total weight of the four turbines and two sets of reduction gears, 105 tons.

There were two important merchant-ship jobs going through the shops. One of 19,500 horsepower, single-reduction, two propeller shafts, gear pitch $\frac{7}{12}$, turbine revolutions per minute 1,300, propeller 90, main gear wheel approximately 13-foot diameter. The other job was a 13,500 shaft horsepower, double-reduction, two shafts, gear pitch 1 inch and $\frac{7}{12}$ inch, turbine speeds 2,600 and 1,750, propeller 90 revolutions per minute.

Angle of gear teeth of 30° is now standard.

Wherever possible this company installs the condenser below the L. P. turbine. While they are now making an installation where the L. P. turbine casing takes the entire weight of the condenser they prefer to take a portion of its weight on supports. They do not, however, use an expansion joint between the turbine casing and the condenser.

Their usual practice is to use a $3\frac{1}{2}$ per cent nickel steel heat treated from 40 to 45 tons tensile for their pinions and ordinary mild carbon steel for the gear-wheel rims. While no gear wheels were seen for naval vessels, I was lead to believe that the spider construction would be built up from steel plates on account of the necessity of saving weight.

For turbine blading, even where superheated steam is used, they prefer to use phosphor bronze for both the Parsons and Brown-Curtis turbines. Until recently they have been machining their blading for Parsons turbines from rubarb stock for their rotors, but are now going back to the rolled section and the use of separate packing pieces. The reason given is that the removal of the surface left by the rolling process, when removed by machinery, results in erosion of the blade. Their Brown-Curtis turbine blading is machined from rubarb section.

Quite a number of aluminum castings were noted in one of their gun shops, and when questioned as to their use was informed that they were for use on the light cruiser and that there was a considerable amount being used there in order to reduce weight. The type of alloy used was stated to be their own patent and secret.

GREAT BRITAIN

INSPECTION OF WORKS OF CAMMELL LAIRD (LTD.)

March, 1925

The inspection was made of the works of Cammell Laird & Co. (Ltd.), Birkenhead, Cheshire. This company is building the *Rodney* and also the machinery for that vessel. We were informed upon arrival that it would be impossible for them to show us the *Rodney* or any machinery building for her. In the inspection of the yard, however, certain parts of the machinery for the *Rodney* could be identified. Her line shafting was forged solid and approximately from 20 to 22 inches in diameter. One of her propellers was about 12 feet in diameter, approximately 0.65 projected area, and manufactured by the Manganese Bronze Co. without any machine work being done on the blade surface and appeared to be of very high-grade casting and exceptionally true and smooth. The reduction

gears are single reduction, having two pinions, one for a high-pressure and one intermediate-pressure turbine, mounted in tandem, and the other for low pressure. The pinions are mounted rather high on the gear and the main condenser is installed below the low-pressure turbine. Their practice is, and has been, to support the entire weight of the condenser from the L. P. turbine casing—the only supports being to prevent the lateral movement of the condenser. It is reasonable and appeared from the L. P. turbine and condenser that this method is to be used for the *Rodney*.

From the diameter and projected area of the propeller it is apparent that the revolutions per minute is rather high, 300 to 350.

No close view could be obtained of the *Rodney* on the ways. It appeared, however, that her lines were rather fine and that No. 1 turret would be low, No. 2 to fire over No. 1, and No. 3 turret low. However, this work was not far enough along to be certain. It did appear, however, that all three turrets were much nearer to being amidship than I had been lead to believe. It is apparent that the shipbuilders and the steel makers are as far apart as ever on settling the cause of their gear trouble. Each says that the other is entirely to blame.

This company uses about 900 pounds per linear inch for Navy ships and 600 for merchant. They have one vessel in successful operation (about five years) having double reduction gear using 853 pounds per linear inch.

They state that they favor phosphor bronze for turbine blading for all stages for both Curtis and Parsons turbines for both saturated and superheated steam.

For high-pressure steam valves they use stainless steel for the valve disk and trimmings.

GREAT BRITAIN

SOUTH AFRICAN NAVAL POLICY

(From a consular report)

March, 1925

Recently the Navy League of South Africa addressed a letter to the government advocating the securing of a light cruiser from the British Navy and its maintenance by the Union. The league has now received a reply written on behalf of the government by Brig. Gen. A. J. Brink, chief of the General Staff of the Union Defense Forces.

In this reply, which is dated at Cape Town February 25, 1925, General Brink writes that he has been directed by the Minister of

Defense to advise the league that the policy which has been adopted is gradually to increase the strength and scope of the South African naval service. In 1922 a commencement was made with the formation of a permanent naval service and two mine sweepers and a survey ship were put in commission. Three mine-sweeping flotillas were also organized in connection with the South African division of the Royal Naval Volunteer Reserve and are being trained, and the general service companies were increased from three to five. In addition to the foregoing a war reserve from the permanent and also from the R. N. V. R. sections of the South African naval service is now being organized. The total strength of the South African naval service and the R. N. V. R. undergoing training is 860, all ranks.

The reply further points out that in addition to the normal annual expenditure on the naval service the Union Government has undertaken to defray expenditure in connection with the expansion of the royal naval dockyard at Simonstown at a cost to the State of £433,750. "The annual expenditure is defense services of the Union," the reply concludes, "is in the region of £1,000,000, and I regret to say that the financial position of the country is such that it will not permit of the adoption of your suggestion in the matter of a light cruiser."

NAVAL DEFENSE OF BRITISH EASTERN AFRICA

(From official blue books)

There is no naval defense force, nor any naval station in British Eastern Africa, either along the coasts of the Indian Ocean or on the great fresh-water lakes of Victoria Nyanza, Tanganyika, Albert, or Edward.

Units of the British East India Cruiser Squadron occasionally visit Mombasa and Zanzibar harbors, but the naval base for the squadron is located at Trincomalee, Ceylon.

Tanga and Dar-es-Salaam harbors are not visited usually by war vessels, due to the narrow, dangerous entrances and restricted anchorages. Anchorages at Zanzibar are sufficient to shelter ships of the Hood class, 40,000 tons, but Mombasa and Kilindini joint harbors do not admit readily ships over 11,000 tons.

There are no dry docks or yards in East African ports equipped to repair or clean vessels over 200 feet in length or 1,000 displacement tons.

Limited quantities of coal and oil fuel are available at Zanzibar and Mombasa, but the reserve is limited, and ships requiring coal should bunker at Durban, and oil burners should re-fuel either at Aden or Colombo.

GREAT BRITAIN

MISCELLANEOUS NOTES

H. B. M. submarine "X-1"

Regarding the submarine X-1, photographs of which and a paragraph concerning guns for same appeared in last month's BULLETIN (p. 17, 9), a report has since been received stating definitely that the guns for the X-1 are 5''-2—45 calibers long, with semiautomatic breech mechanism.

Porton experimental station

The following appeared in the British press:

"The function of the experimental station, Porton, is to carry out on behalf of the three services all applied research and experiments of a service nature relating to defense against chemical warfare; in addition, antigas courses of instruction are given. The number of experiments on live animals undertaken during 1924 was 241, which 1,001 animals were used. The staff employed at Porton consists of 22 naval, military, and air force officers and 26 civilian scientists, together with certain subordinate staff. Figures of cost of the establishment during the war are not available, but post-war expenditures have been, approximately, as follows: 1919-20, £90,000; 1920-21, £54,000; 1921-22, £81,000; 1922-23, £87,000; 1923-24, £103,000. The cost during the current year is estimated at, approximately, £115,000, increasing in 1925-26 to £132,000.—(*Secretary for War.*)"

Contemplated improvements at Devonport

The following article is taken from the Western Morning News:

"The Admiralty has already adopted and commenced with the approval of Parliament two schemes which, when completed, will permit of bulged ships being dealt with at Devonport. These are the widening of the entrance to the large basin at Keyham yard and the provision of a berth for a floating dock at the entrance to Weston Mill Lake.

"These schemes are estimated to cost £320,000 and £135,000, respectively, but the demand for economy in public expenditure has been so insistent during the last few years that in the navy estimates for the financial year now drawing to a close sums of only £7,500 and £37,500 were provided for the two schemes. In view of the pressure which is being brought to bear upon the government to reduce tax-

ation, there is not much ground for hoping that the provision made in the estimates for the new year will permit of rapid progress being made with the works."

Floating dock for Australia

The following news item is quoted from the Daily Telegraph:

"Sydney, 11 April.—The Commonwealth Government has decided to contribute £120,000 toward the estimated cost, £300,000, of the floating dock of 13,000 tons for the New South Wales Government dockyard at Walsh Island, Newcastle, N. S. W. Priority is to be accorded to naval vessels, and the dock will be controlled by the Federal Government in any emergency. Mr. Bruce, Federal Prime Minister, pointed out that the procedure was similar to the many cases in which the British Admiralty subsidized commercial docks, subject to naval requirements being observed in their construction. This was an example of linking the commercial necessities of Australia with defense requirements. The Commonwealth's defense construction program, Mr. Bruce added, was well balanced, embracing two cruisers, two submarines, a seaplane carrier, and a floating dock."

Research in the Pacific

The following appeared in the British press on March 25, 1925:

"The steamship *St. George*, the vessel of the Scientific Expeditionary Research Association which left Dartmouth in April, 1924, to carry out research work in the eastern Pacific, reached Tahiti, the most western point of the long voyage, on February 20, and is now homeward bound. The *St. George* has visited Madeira, Trinidad, the Panama Canal Zone, and the Galapagos Islands, whence she had a voyage of 41 days to the Marquesas, across the Pacific, without sighting another vessel. Passing on to the Paumotus Islands, the party made scientific investigations on several of the group, and left Tahiti, the central island, on March 19 for home. On her way the *St. George* will call at Easter Island, in mid-ocean, to enable the scientists to study the mysterious huge stone figures placed around the island, the origin and purpose of which are absolutely unknown. From Easter Island the expedition will proceed to Panama, and they anticipate arriving back in England about the end of June."

Scientific expeditions are extremely valuable to British naval intelligence.

Fleet target service—British

The following appeared in the London Times:

“Orders have been issued that battle-practice targets Nos. 27 and 28 at Gibraltar, and five Pattern 6 targets there, are henceforward to belong primarily to the Mediterranean Fleet. It has also been approved to retain the destroyer *Tower* and fleet tugs *St. Cyrus* and *St. Genny* in the Atlantic Fleet and subject to the necessary ratings being available, the *Tower* will be recommissioned with a special complement this month for the Atlantic Fleet target service. Her allocation for administrative purposes is under consideration. Orders have further been given for either the *Wolsey* or the *Woolston*, reserve destroyers at Malta, to be fitted for towing coastal motor-boat hulls, the towing fittings being similar to those now in H. M. S. *Tower*. The crew of the selected vessel will be augmented locally when required for target-towing purposes.”

Aviation notes

The following is quoted from House of Commons debates, 18 March, 1925:

“Major Glyn asked the Secretary of State for Air what is the total strength of the Royal Air Force, including those serving in India, showing officers, warrant officers, noncommissioned officers, airmen, and boys of the regular establishment, and also civilians both permanently employed and those employed as civilian laborers, each separately; what is the total number in each of the above categories who actually hold pilots' certificates; how many in each category are under instruction to fly; how many in each category are employed in the construction, repair, and maintenance of machines borne on the strength of units; and how many are in each category employed in stores depots at home and overseas, respectively?”

“Sir S. Hoare: As regards the first part of the question, the total strength of the Royal Air Force is 3,282 officers, 115 cadets, 292 warrant officers, 4,512 noncommissioned officers, 22,049 aircraftsmen, 2,406 boys. As regards civilians employed, on the assumption that by ‘civilians permanently employed’ and ‘those employed as civilian laborers’ my honorable and gallant friend refers to nonindustrials and industrials, respectively, the figures are 2,744 and 14,179, respectively.

“As regards the second part, there are 2,038 officers and 107 warrant officers and noncommissioned officers qualified as pilots, but no information is available as to the number of civilian employees holding pilots' certificates.

"As regards the third part, 274 officers and 38 warrant officers, noncommissioned officers, and aircraftsmen are under flying instruction. I am not aware that any civilian employees are under flying instruction.

"As regards the fourth part, about 6,250 warrant officers, noncommissioned officers, and aircraftsmen, and 87 nonindustrial and 1,397 industrial civilians belong to trades directly concerned with the construction and repair of aircraft and engines, and also with maintenance, but many others are employed on duties connected with maintenance, etc., in a broad sense. It is impossible to give a corresponding figure for officers, since their duties are not confined to this kind of work.

"As regards the last part of the question, there are 51 officers, 315 nonindustrial and 2,067 industrial civilians employed at home stores depots, and 28 officers, 310 warrant officers, noncommissioned officers and aircraftsmen, and 36 nonindustrial and 256 industrial civilians employed at stores depots overseas."

The following is quoted from the speech of the First Lord of the Admiralty in the House of Commons, March 19, 1925:

"Now I come to the fleet air arm. This service is the same as last year. I think it was in October last year that the government, in the last days of its existence, decided that the cost of this arm should be on our vote as a grant-in-aid to the Air Ministry, and by that condition we have so far been guided as to the relations between the two services. It is for us to set the requirements we want, and for the Air Ministry to arrange to supply them. That was explained by the Secretary of State for Air on the air estimates. Their object is as an integral part of the fleet to operate in any geographical position where there may be a sea fight to assist in protecting shipping against aircraft and other forms of attack. The personnel will consist of naval and air officers. The estimated cost will be £1,320,000, and this will be devoted to maintenance charges, pay of personnel, and the provision of material to complete the establishment and reserve. The sum of £109,800 is set aside to meet the cost of 24 war aircraft to be ready for *Glorious* and *Courageous* when they commission later on * * *. The present strength of the air fleet arm is 105. There are 24 spotting machines and 27 reconnaissance machines, 36 fighters, and 18 torpedo-bomb throwers. That is sufficient to equip the *Argus*, the *Hermes*, *Eagle*, and *Furious*; and there are 12 fighters for battleships and cruisers. The total strength by the end of 1925-26 will be increased by 24, and in personnel by the end of 1925-26 it should be 241 officers and 1,021 men;

24 officers have been trained and 14 are under training now, and eventually we hope that 70 per cent of the pilots and 100 per cent of the observers will be naval."

Proposed establishment of air routes in central Africa

The following is quoted from the Times (British):

"Nairobi, April 11.—As the result of negotiations with a representative of the Blackburn Aeroplane Co., Leeds, the governments of Kenya, Uganda, and the Anglo-Egyptian Sudan have agreed in principle to give assistance in a preliminary survey for an air route between Kisumu (on Victoria Nyanza) and Khartum, which will be the first step in a branch joining the imperial air route at Cairo. It is proposed to use eight passenger seaplanes, which will follow the Nile. A large subsidy will be necessary in the first few years, but official assistance is at present confined to the survey."

English-Albanian situation

The following is a comment on the English-Albanian situation from the point of view of the special correspondent of the *Vossische Zeitung*, in Skutari:

"While the eyes of European politicians are turned on the German-French negotiations, Great Britain has imperceptibly become the master of Albania within the short period of three months. This has brought it an admirable new naval base in the Mediterranean which is of the most decisive importance in connection with England's influence on Adriatic politics.

"The first English political move last year was a parade of the Mediterranean fleet, the fleet visiting all the Albanian and Yugoslavic harbors. Anyone at all conversant with the Albanian's sensitiveness to military display knows how to estimate correctly the value of such a powerful naval game. In the meantime the Albanian December revolution led to the victory of the Serbophil Aclmed Bey Zogu and the expulsion of the Italian favorite, Fan Noli. As this put an end to Italian influence on the eastern coast of the Adriatic, there was the danger of an extension of the Serbian water frontiers beyond Cattaro to Valona. This touched English Mediterranean politics very closely and the old English diplomat, Mr. Eyers, caused the dispatch of several cruisers to Durazzo for the alleged protection of Europeans. For sometime now he has been minister resident and is very greatly beloved by the Albanian populace. He does not live in the capital, Tirana, but at Durazzo on the

coast in order to be able to send information to London by English ships with greater freedom and less hindrance. No other foreign fleets appeared at the time of the revolution; the Italian torpedo-boat destroyers only served for the escape to Brindisi of the Albanian politicians with Italian sympathies.

"Now began the activity along administrative, economic, and commercial lines. The new Albanian Government did away with the War Ministry which dealt a bad blow to the army instructor and organizer, Colonel Mirdatsch, one of the former Austrian officers, and removed the last vestige of the old German-Austrian influence. The liquidation of the War Ministry is the first step in preparation of the conversion of the entire army into a police force which will be under the direction of English officers. This insures English administrative influence in the entire country for it is only the police in the Balkans who can exercise sovereign power successfully in the inaccessible districts.

"The Albanian Treasury also comes under English direction. While last year the League of Nations refused all credit to Albania, an Anglo-Egyptian Bank concern has been busy in Tirana for the past few weeks in connection with the formation of the Albanian National Bank and the procuring of credits. The present status of the negotiations bespeak a successful outcome.

"England has also been victorious in the distribution of petroleum concessions in Valona and San Giovanni di Medua. Through a parliamentary decree of February 16, after a short debate, the right of exploiting about 200,000 hectares of oil fields was conferred on the Anglo-Persian Oil Co. (Ltd.) of London.

"At the same time a battle began in Parliament for the island of Saseno, situated just in front of Valona. This island was allocated to Albania in 1913 by the International Boundary Commission and guaranteed by the London conference. Nevertheless Italy occupied the island in October, 1914, and finally the city of Valona also. When it withdrew from Valona after the close of the war, it remained in Saseno, which, with its lighthouse and heights 331 meters above sea level, completely commands the harbor of Valona. The island fortifications have been greatly strengthened during the last years and equipped with heavy guns. Albania desires the island back, which was allocated to it and not to Greece, and is no longer going to permit a third power to occupy it. Public opinion has become unusually excited during the last days, and Albania is supported by England, which will gladly dispense with Italian guns in front of its oil fields, and is annoyed by every manifestation of Italian power on the eastern Adriatic.

"Most of the Albanians are quite contented with the part England has played in the whole proceeding. They now feel freed

from the continuous fights in the interior without sacrificing in anyway the character of the country. The Italian economic power is broken and the political fear that the southern part of Albania would become an Italian province has also disappeared. The vital point to Albanians is that money comes into the country and England seems to hold this promise for them. This is the first time since the sultanhip of Abdul Hamid that England has won the hearts of the Albanian peasants."

ITALY

BELLUZZO TURBINES FOR "CRISPI"

The machinery for the destroyer *Crispi* consists of two sets of Belluzzo turbines, each set driving one shaft through a set of gearing. Each set is designed for 14,000 brake horsepower but is capable of developing 18,000 brake horsepower, and it is expected that 40,000 brake horsepower will be obtained.

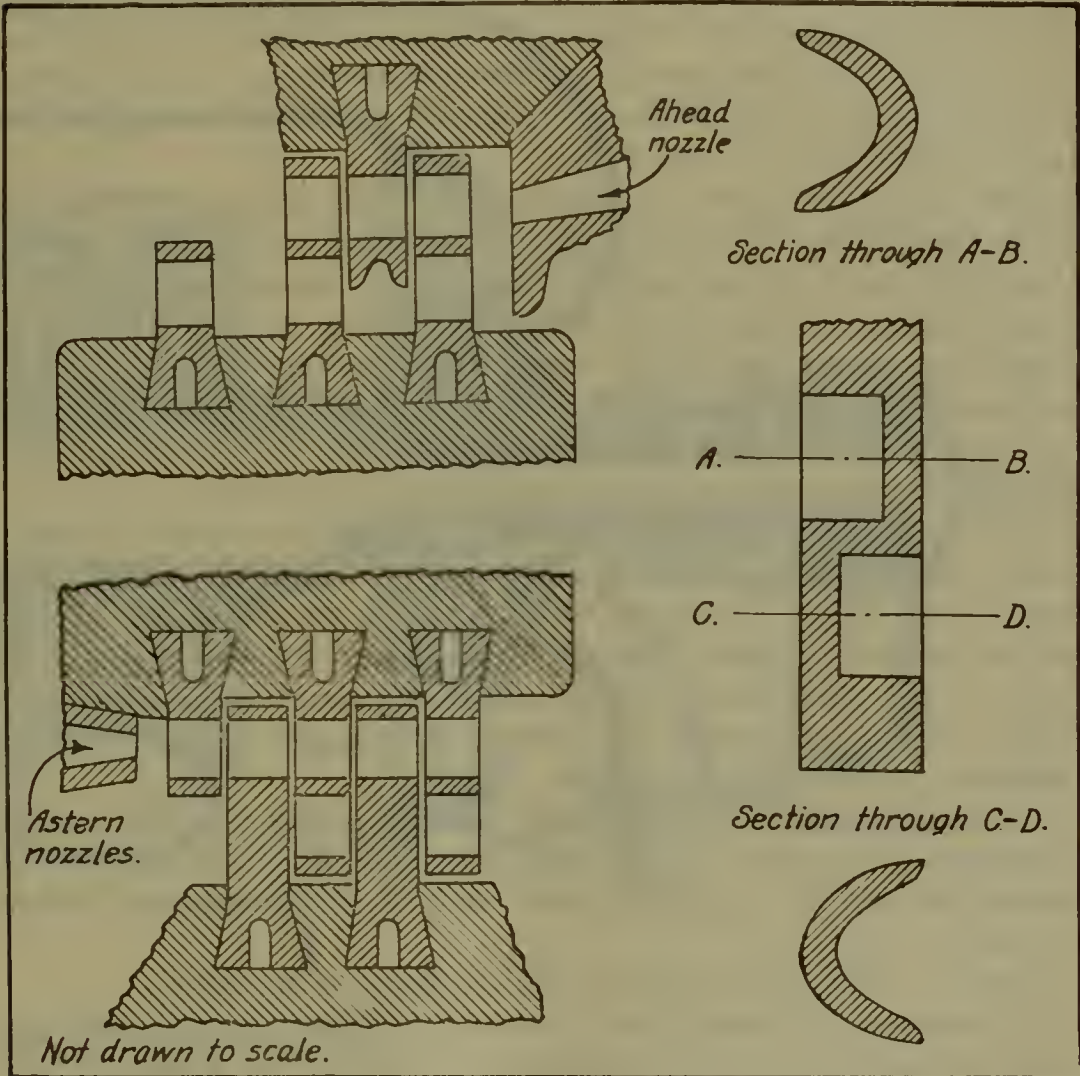
The turbines are entirely of the impulse type, but are stated to have a slight amount of reactive effect as well, which is said to improve their efficiency. They are of very solid design, and the blading is exceptionally heavy, and a great deal of work is put into its manufacture. Each set consists of one high-pressure and one low-pressure turbine. The turbine is the most interesting, as it embodies an astern turbine and a cruising turbine in the high-pressure ahead main turbine casing, though the inclusion of the cruising turbine can hardly be looked upon as an entirely new idea.

High-pressure turbine.—For ahead working steam is admitted through four nozzle valves, placed at the top of the casing and shown in the sketch at A, to nozzle boxes just below them, three of which carry eight nozzles each; the fourth box carries five nozzles and is divided into two compartments, each of which is controlled by a cruising valve, shown in the sketch at B, one dealing with two nozzles and the other with three.

Steam from the nozzles passes to the first set of blades which is combined ahead and astern set. The set consists of three rows of moving blades, two rows of fixed blades for going astern and one set of fixed blades for going ahead. The combination of ahead and astern is provided by making the first two rows of blades double blades, the lower portion being concave in one direction and the upper portion concave in the opposite direction, as roughly indicated in the sketch. The outer portion of the blade is used for ahead working, and the ahead segment of fixed blading, one row only, is arranged between the first and the second row of moving blades in the top portion of the casing.

When steaming at cruising speeds the valve C (see general view) is open and the valve D is shut, thus forcing the steam to pass through the set of cruising blades before arriving at the final expansion. When cruising speed is exceeded the valve D is opened, allowing the steam to pass direct to the last expansion.

For going astern there are two nozzle valves, each controlling 18 nozzles. Steam passes from the nozzle valves around a belt to the nozzle boxes, which are placed in the lower portion of the turbine.



The valve C is shut, cutting off the second and third expansions, and the valve E is opened to allow the exhaust to pass to the low-pressure astern turbine.

The general arrangement of these ahead and astern blades is indicated in the appended sketch.

The valves A, C, D, and E are controlled by a cam shaft worked from one position on the starting platform, so that the handling of the engines is rendered very simple. The cruising nozzle valves B are controlled separately from the starting platform.

The arrangement of the low-pressure turbine is simple. The steam for ahead working enters at the forward end and, after passing through the first stage, divides into two parts and enters the last stage half from the forward and half from the after end.

The astern portion is placed within the last ahead stage, as shown in the general arrangement, and the astern steam enters in the middle and flows fore and aft.

Blading.—All the moving blading is made of high-tension nickel steel machined from the solid and dovetailed into the rotor. There are no packing pieces: the bottoms of the blades themselves, forming the distance pieces projections, are also left at the tips of the blades, and when in place butt so well against each other as to give the impression of a heavy solid ring.

Shrouding is only used on the last row of the first expansion and the last two rows of the second expansion of the low pressure ahead, where the blades are long, and in these cases in machining the blades projections are left about one-third of the way up from the root, which projections butt on the next blade, forming a good support. No brazing or soldering appears to be used at all. The middle of the root section of each blade has a wide slot cut in it to allow for the difference in expansion of the nickel steel and cast iron.

The fixed blades in the low-pressure turbines are made of steel, welded into cast-iron diaphragms, with the exception of the last two rows of the second expansion, which are made of manganese bronze welded into naval brass diaphragms to prevent corrosion.

The larger fixed blades, which are the steel and bronze ones, are shaped to give the same pitch at the outside as well as at the inside diameters to give a constant steam velocity.

The diaphragms have brass rings made in sections on their inner peripheries, and these rings, which are grooved on the inside, are pressed inward by springs to allow only a small clearance round the shaft.

There is ample axial clearance allowed between the blades.

The first stage nozzle boxes in the high-pressure turbines and the leads thereto, which carry high-pressure steam, are made of cast steel; the remainder of the casings are made of cast iron and the rotor shafts and wheels are of steel.

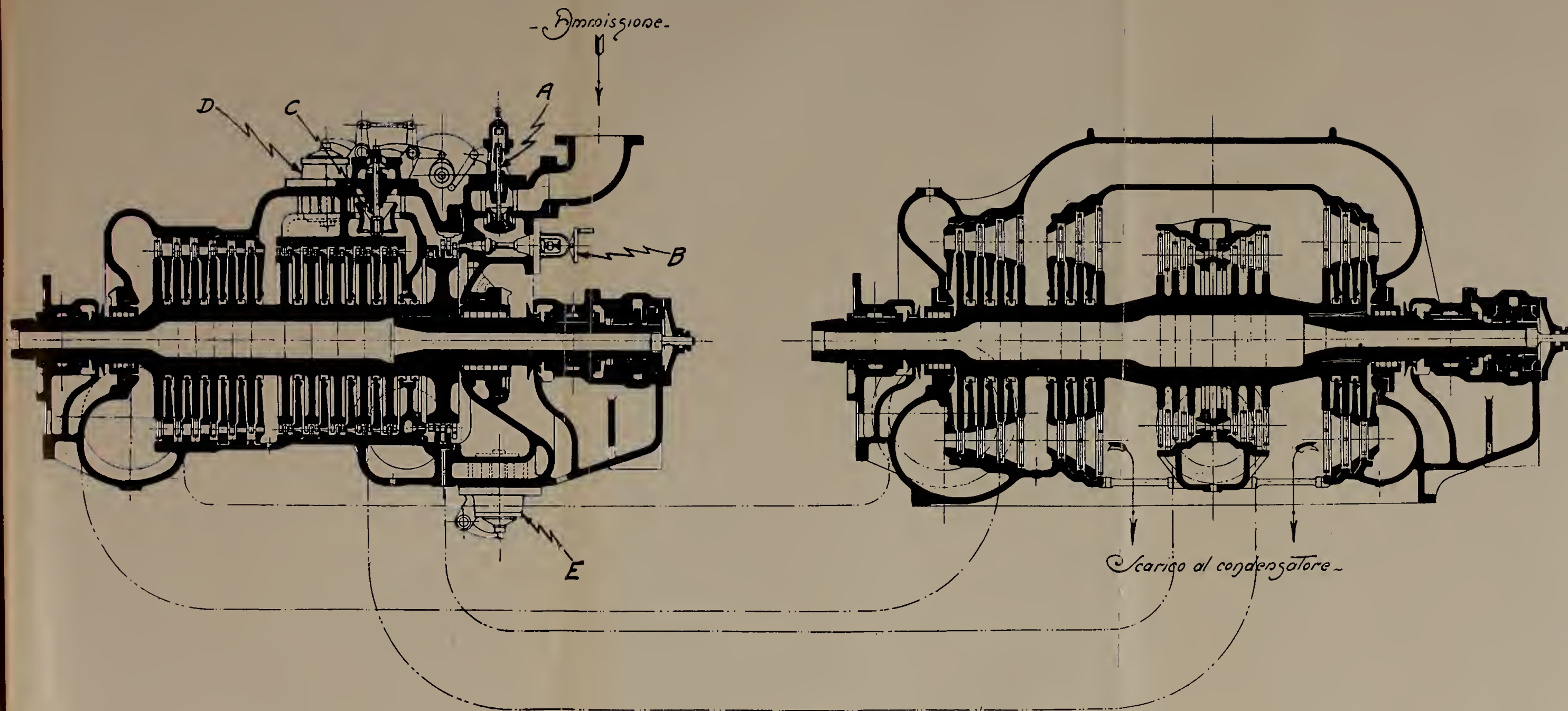
All parts are of very solid construction, and the workmanship appears to be of the best throughout.

The glands are made with carbon packing and steam packed in the usual manner.

The bearings are of the ordinary white metal, lined-forced lubrication type, and Michell thrusts are fitted throughout.

~ Turbina a vapore per cacciatorpediniere ~

- Immissione -



All turbine gearings, thrusts, and glands are made interchangeable, as also are the gear pinion, shafts, and bearings, to reduce the number of spare parts carried.

I saw one rotor balanced; this was done dynamically, and appeared to be done very well, the plant used for this purpose being good.

The following particulars were supplied by the manager of the works:

The weight of the turbines and gearing of the *Crispi* is 110 tons. This includes thrust blocks, forced lubrication pumps (capacity, 40 tons per hour), two oil coolers, and two automatic steam valves arranged to shut off steam and stop the turbines should the oil pressure stop. The weight of the two condensers which are arranged for under the low-pressure turbines is not included in the above.

Estimated steam consumption.—At full power, 4.5 kilograms (9.9 pounds), per brake horsepower per hour; at 20 knots, 6 kilograms (13.2 pounds), per brake horsepower per hour; at 15 knots, 6.5 kilograms (14.3 pounds), per brake horsepower per hour. Fifteen knots is maximum speed with cruisers.

Designed steam pressures.—At boilers, 20 atmospheres (294 pounds per square inch), absolute; at engines, 17 atmospheres (250 pounds per square inch), absolute; discharge from high-pressure nozzles at full power, with or without cruisers, 8 atmospheres (118 pounds per square inch), absolute; low-pressure receiver, at full power, 1.2 atmospheres (17.6 pounds per square inch), absolute; vacuum, 92 per cent of perfect vacuum, or about 27.6 inches; astern pressures at high-pressure nozzles, 17 atmospheres (294 pounds per square inch), absolute; low-pressure receiver, 2.5 atmospheres (37 pounds per square inch), absolute; steam is superheated to 270° C. (518° F.).

The *Crispi* will have a displacement of 1,200 tons, and is designed for a speed of 35 knots at 28,000 brake horsepower. The revolutions of the turbines at 30 knots are 2,850, the propeller revolutions being then 390.

The over-all dimensions of the turbines are indicated on the general view.

A digrammatic print showing the arrangement of one set of turbines and gearing is also attached.

A design has also been prepared for a set of turbine machinery of the Belluzzo type for a light cruiser with four shafts having a set of turbines developing 36,000 brake horsepower on each shaft, or a total of 144,000 brake horsepower. The vessel would have 12 boilers burning oil fuel, and the weight of the whole machinery would be 14 kilograms (or about 30.8 pounds) per brake horsepower.

ITALY

LIST OF AIRDROMES AND SEAPLANE STATIONS

The following is a complete list (omitting dirigible stations) of airdromes and seaplane bases in use at present.

Italy has about 140 flying fields, all organized during the World War. Of these only the 69 listed hereunder are being used at present, the remaining 71 being available for housing squadrons to be organized in the future.

- | | |
|-------------------------------|----------------------------------|
| 1. Augusta. | 36. Nogara (Verona). |
| 2. Aviano (Udine). | 37. Orbetello. |
| 3. Baggio (Milan). | 38. Padova. |
| 4. Bologna. | 39. Palermo. |
| 5. Bolzano. | 40. Parma. |
| 6. Boscomandico (Verona). | 41. Passignano (Perugia). |
| 7. Brindisi. | 42. Pescara. |
| 8. Cagliari. | 43. Pisa. |
| 9. Cameri (Novara). | 44. Poggio Renatico (Ferrara). |
| 10. Campalto (Nevona). | 45. Pola. |
| 11. Capodichino (Naples). | 46. Ponte S. Pietro (Bergamo). |
| 12. Campoformido (Udine). | 47. Pontedera (Pisa). |
| 13. Capua. | 48. Portofino. |
| 14. Catania. | 49. Porto Corsini (Ravenna). |
| 15. Cento (Ferrara). | 50. Praja d'Ajato (Cosenza). |
| 16. Centocelle (Rome). | 51. Ravenna. |
| 17. Cerveteri (Rome). | 52. Sarzana. |
| 18. Ciampino (Rome). | 53. Schirana. |
| 19. Cinisello (Milan). | 54. Sesto Calende. |
| 20. Ferrara. | 55. Sesto S. Giovanni. |
| 21. Foggia. | 56. Siracusa. |
| 22. Furbara (Rome). | 57. S. Nicolo al Lido (Venezia). |
| 23. Ghedi. | 58. S. Nicolo Verano. |
| 24. Grottaglia (Taranto). | 59. S. Vito Normanni. |
| 25. Lagosta (Yugoslav coast). | 60. Spezia. |
| 26. Leros (Dodecanese). | 61. Taliedo (Milan). |
| 27. Livorno. | 62. Taranto. |
| 28. Lonate Pozzolo (Milan). | 63. Ternata Varano (Como). |
| 29. Loreto. | 64. Terranova Pausania. |
| 30. Malpensa (Milan). | 65. Venaria Reale (Novara). |
| 31. Marsala. | 66. Vigna di Valle (Rome.) |
| 32. Milazzo. | 67. Venezia. |
| 33. Mirafiori (Turin). | 68. Vizzola Ticino (Milan). |
| 34. Montecelio (Rome). | 69. Zaule. |
| 35. Naples. | |

ITALY

VISIT TO ITALIAN AIRCRAFT FACTORIES

March, 1925

(Source: United States Army)

A visit was recently made to the Italian aircraft factories, and the following is a report concerning the latest types of planes in construction and in project:

a. Fiat Co.—Expects to build an all-metal seaplane for carrying torpedoes. It will have two floats and be equipped with a 900-horsepower engine, which is also in the early stages of construction (see Italy No. 8360). The Fiat is also engaged in building about 120 BR-1 day-bombardment machines (see annual report). Production, about 20 per month.

b. Cantiere Navale Triestino.—Is completing two C. N. T. 6-torpedo seaplanes. This machine was previously described, but under the denomination C. S.-76. In annual report previously submitted it was stated that an order for one squadron of C. N. T. torpedo seaplanes was contemplated by the Italian Air Service. This machine is nothing but the C. S.-6, but henceforth will be known as the C. N. T.-6, because the factory has decided to call their machines C. N. T., followed by progressive numbers. Engineer Confluenti, chief engineer of the aeronautical section of these yards, expects to equip the plane with three Lorraine 400-horsepower engines instead of the present three Fiat A-12 bis 300 horsepower, thus permitting two Whitehead torpedoes to be carried and generally increasing the performance. This company is also building a commercial plane, the C. N. T.-10, to be used on the proposed air line Turin-Trieste. This plane will have 4.30 hours' endurance and a velocity of 190 km. per hour (118 miles), while landing velocity is 90 km. per hour (56 miles). It is of the central-boat type, biplane cellule, equipped with one Fiat A-12 bis engine, and will carry two pilots and a radio operator.

The construction is plywood, wings fabric-covered. Useful load carried: 800 kg. (1,760 pounds). Officials of the company state that 10 such machines will be built in the near future. This machine was originally designed for military purposes as a light bombardment or observation plane, in which case one pilot, one gunner, and one radio operator would be carried in addition to several bombs.

The aeronautical section of this company is also testing out a new observation biplane, the C. N. T.-12 seaplane equipped with one Isotta-Fraschini 250 horsepower engine, which attains a velocity of

200 km. per hour (125 miles) and lands at 70 km. per hour (43 miles). The hull is plywood, and wings fabric-covered. It carries a useful load of 500 kg. (1,100 pounds). This plane took off in seven seconds, with pilot and reduced gas supply. The company claims that this machine attained an altitude of 6,000 m. (19,680 feet) in one hour.

An amphibian machine is also in project, but no data is available at present.

c. Piaggio Co.—This company, located in Genoa, is engaged in shipbuilding, construction of railway cars, and has an aeronautical section, having absorbed the Pegna-Bonmartini aircraft factory, Rome. The company is engaged at present in the construction of two aero P. 3 night-bombardment machines designed Engineer Pegna and originally designated as P. B. N. A third machine of this type is now at Montecelio experimental field for test flights. Attached hereto are two photographs of this plane, one tracing and a detail tracing of the landing gear, which is particularly interesting. This P. 3, while being very strong, is believed to be too heavy, the fuselage being entirely of plywood. Engineer Pegna is planning to equip the P. 3 with floats.

This company has also constructed a pursuit monoplane, known as the P. 2. Tables of characteristics mentioned above and photographs have previously been submitted. It was rejected by the engineering division because failing to answer the velocity requirements.

d. Breda Co.—Attached hereto are one tracing and four photographs of the BA-2 metal observation plane; one tracing and three photographs of the BA-3 night-bombardment plane equipped with two 400 horsepower Lorraine and four Spa 200 horsepower engines, respectively; a tracing of the projected BA-4 metal observation plane, which is a modified type of the BA-2; one tracing of the SC-1 school machine, and one picture showing the BA-3 and the Breda aviation school equipment, consisting of SVA 200 horsepower machines aligned on the field.

The BA-2 metal observation plane is a monoplane equipped with an Isotta-Fraschini 250 horsepower or a Colombo 140 horsepower engine; fuselage is all metal but fabric-covered, as well as the wings for easy inspection of the framework. Wing spars are of sheet steel, ribs of duraluminum, fuselage of steel tubing. Spars of silver spruce may also be used.

This type may be equipped with a Colombo 140 horsepower engine for training, colonial, or mail services, in which case it will carry a crew of three; with an Isotta-Fraschini 250 horsepower engine, three-seater, for observation work, or with an Isotta-Fraschini

250 horsepower engine, two-seater, for light bombardment work, tactical reconnaissance, artillery observation, etc. Visibility is excellent, and maneuverability is claimed to be very good.

Characteristics of the BA-2 type

| Power plant..... | Horsepower 140—Colombo | Horsepower 250—Isotta-Fraschini | |
|-----------------------|----------------------------------|----------------------------------|---------------------------------|
| | | Three-seater | Two-seater |
| Crew..... | 2 pilots..... 1 observer..... | 2 pilots..... 1 observer..... | 1 pilot..... 1 observer..... |
| Span..... | 13 mt.—42.64 ft..... | 14.10 mt.—46.24 ft..... | 14.10 mt.—46.24 ft..... |
| Wing chord..... | 2.45 mt.—8.03 ft..... | 2.50 mt.—8.2 ft..... | 2.50 mt.—8.2 ft..... |
| Height..... | 3 mt.—9.84 ft..... | 3 mt.—9.84 ft..... | 3 mt.—9.84 ft..... |
| Area..... | 30 sq. mt.—322.8 sq. ft..... | 34 sq. mt.—365.8 sq. mt..... | 34 sq. mt.—365.8 sq. ft..... |
| Useful load..... | 350 kg.—770 lbs..... | 450 kg.—990 lbs..... | 500 kg.—1,100 lbs..... |
| Total weight..... | 1,150 kg.—2,530 lbs..... | 1,400 kg.—3,080 lbs..... | 1,400 kg.—3,080 lbs..... |
| Endurance..... | 3 hours 30 minutes..... | 3 hours..... | 3 hours..... |
| Safety factor..... | 8..... | 8 hours..... | 8 hours..... |
| Maximum velocity..... | 165 km. p. h.—102 m. p. h..... | 210 km. p. h.—130 m. p. h..... | 215 km. p. h.—133 m. p. h..... |
| Minimum velocity..... | 75 km. p. h.—46 m. p. h..... | 90 km. p. h.—56 m. p. h..... | 90 km. p. h.—56 m. p. h..... |
| Service ceiling..... | 3,500 mt.—11,480 ft..... | 5,000 mt.—16,400 ft..... | 5,000 mt.—16,400 ft..... |

The BA-3 night-bombardment plane (called *BRV* in previous report) is a large biplane elevator, three rudders. It may carry 800 kg. of bombs (1,760 pounds) or one torpedo of corresponding weight. Endurance, six hours. Safety factor, eight. Construction is wood, steel, and duraluminum, fabric covered. The machine is equipped with two Lorraine 400-horsepower or four Spa 200-horsepower engines, easy of access in flight; a central corridor permits communication between the front machine gunner, the two pilots, and the rear machine gunner. This machine is very stable in flight, very maneuverable, and sensitive to controls. It is able to fly with only one engine, when powered with the two Lorraine engines, or with two out of the four Spa engines.

One of these machines is being tested out at the Montecelio experimental field. The air service engineering division is not very favorably impressed with the machine. While it shows considerable study as to details, it is too heavy.

Characteristics of the BA-3 type

| Power plant | 2 Lorraine 400 horsepower engines | 4 Spa 200-horsepower engines |
|------------------------|---------------------------------------|-----------------------------------|
| Crew..... | 2 pilots, 2 gunners or observers..... | |
| Area..... | 148 sq. mt..... | 1,592.5 sq. ft..... |
| Span..... | 25 sq. mt..... | 82 ft..... |
| Height..... | 5.70 mt..... | 18.7 ft..... |
| Gap..... | 3.20 mt..... | 10.5 ft..... |
| Weights, empty..... | 3,500 kg. (7,700 lbs.)..... | 3,850 kg. (8,470 lbs.)..... |
| Useful load..... | 2,000 kg. (4,400 lbs.)..... | 1,800 kg. (3,960 lbs.)..... |
| Total weight..... | 5,500 kg. (12,100 lbs.)..... | 5,650 kg. (12,430 lbs.)..... |
| Weight per sq. mt..... | 37 kg. (81.4 lbs.)..... | 38 kg. (81.4 lbs.)..... |
| Maximum velocity..... | 180 km. p. h. (111.8 m. p. h.)..... | 175 km. p. h. (108 m. p. h.)..... |
| Minimum velocity..... | 80 k.m p. h. (49.7 m. p. h.)..... | 82 km. p. h. (50.9 m. p. h.)..... |
| Service ceiling..... | 5,000 m. (16,400 ft.)..... | 3,800 mt. (12,460 ft.)..... |

The "B.1-4" metal observation plane is a modified type of the B.1-2, equipped with one Isotta-Fraschini 250-horsepower engine, the main difference being the location of the wing which is over instead of under the fuselage. No data or expected performance of this machine are available as yet, as the design is still in an early stage.

The Breda "SC-1" school machine is a biplane with central fuselage equipped with a 140-horsepower Colombo engine or Fiat A-10, dual control, the student and instructor sitting side by side. Construction is steel and wood, fabric-covered, very robust, and designed so as to permit rapid substitution of all parts.

Characteristics of the SC-1 type

| | | |
|------------------------|-------------------|----------------|
| Span..... | 10.90 mt..... | 35.75 ft. |
| Wing chord..... | 1.95 mt..... | 6.39 ft. |
| Supporting area..... | 44 sq. mt..... | 473.44 sq. ft. |
| Height..... | 3.10 mt..... | 10.16 ft. |
| Total length..... | 8.20 mt..... | 26.89 ft. |
| Useful load..... | 300 kg..... | 660 lbs. |
| Weight of machine..... | 700 kg..... | 1,540 lbs. |
| Total weight..... | 1,000 kg..... | 2,200 lbs. |
| Endurance..... | 2 hrs. 30 min. | |
| Safety factor..... | 9. | |
| Maximum velocity..... | 130 km. p. h..... | 80.7 m. p. h. |
| Minimum velocity..... | 70 km. p. h..... | 43.4 m. p. h. |
| Service ceiling..... | 5,500 mt..... | 18,000 ft. |

ITALY

THE JUBALAND TREATY

The treaty between Italy and England for the cession of Jubaland has been published on March 10. It cancels the treaty of commerce between Italy and Zanzibar dated May 23, 1885.

The Italian Government will grant the Sultan of Zanzibar an indemnity that will have the value of a tribute implying sovereignty. This sum will be of £1,000 a year, being the proportional quota that up to this has been paid by the British Government to the Zanzibar Government. The Italian Government can pay this debt off once for all by paying the Sultan of Zanzibar a sum of £251,000.

If the Italian Government should wish to partly or entirely abandon the above territory it will be offered on just conditions to the British Government.

The British subjects residing in the transferred territory excepting those that have become British as a result of the cession of the Kenia Colony, may maintain their British citizenship without being obliged to retire from the said territory unless they request to become Italian citizens within the period of six months after the cession to Italy. Should they not request the Italian citizenship, and wishing to retire from the transferred territory, they may leave the

colony within 12 months of the date of the convention. This right is also granted to certain number of Somalis that are separated from their families by the new frontiers, as far as is compatible with the resources of the wells and pastures and calculating the present and future reasonable necessities of the tribes residing in the above territories, and provided these persons are individually registered before being authorized to pass into British territory.

All concessions and rights of land property in the above territory that have been recognized by the preceding government either belonging to private individuals or to companies at the date of the transfer will be recognized by the Italian Government to which all rights and duties of the preceding governments with regard to concessions are transferred.

It is established that the concessions and rights of property will be based upon the laws maintaining in the Italian colony of southern Somaliland and that the Italian Government can have the necessary public works carried out on the same lines as in the above colony.

Regulations have been established with regard to native tribes crossing the border when on the British side there is lack of pasture.

The two governments will take the necessary measures with regard to the evacuation of the British tribes and the occupation of the colony by the Italian troops.

The two governments will establish, in accordance with the local authorities, the transfer to the Italian Government of the government buildings existing in the transferred territory and which the Italian Government will want to buy from the British Government and the conditions of sale of the radio plants at Kisimayo.

The Italian Government will respect the rights of the Sudanese pensioners remaining at Jonte.

ITALY

MISCELLANEOUS NOTES

It has been learned from Sig. Giradelli's personal representative that early in February the Japanese naval attaché in Rome cabled to Tokyo regarding the Giradelli fire-control system and requested permission to visit Spezia and inspect the apparatus. Permission was granted and the visit was made about the middle of February.

It is stated that he reported favorably on the Giradelli apparatus. In the middle of March two more Japanese officers under orders from Tokyo inspected the Giradelli apparatus: Commander M. Hishikawa, I. J. N., who is stated to have come from the Japanese Embassy in Paris, and Ordnance Lieut. S. Murakami, I. J. N., who is stated to have come from the embassy in London.

It is reported that both of these officers were favorably impressed with the Giradelli apparatus and the Giradelli people state that they are expecting an order from the Japanese Government.

12-inch powder charge explodes on "Duilio"

The dreadnought *Duilio* was anchored outside the port of Spezia conducting some experimental practice from her central turret with a 12-inch gun. At 1.40 p. m. a charge took fire inside the hoist of the turret. One petty officer and four men were killed and 15 wounded.

The ship was not injured.

The chief units of the Italian fleet are at Spezia for repairs under the command of Vice Admiral Acton. Captain Ponza di San Martino is in command of the *Duilio*. All the units are having target practice and on April 8 the 12-inch guns were being fired.

While the *Duilio* was firing her last shot from turret No. 3, the charge took fire and one of the 12-inch shells exploded, the ammunition near the gun also taking fire. The captain ordered all the magazines to be flooded.

It is thought that the explosion is not due to carelessness or inefficiency.

Hydroplanes for North Pole Expedition

March, 1925

[From a consular report]

In the year 1924 there was begun at Marina di Pisa, near Leghorn, Italy, the construction of two hydroplanes for Mr. Raould Amundsen, the noted Norwegian explorer, discoverer of the South Pole, and which it was intended to be used by him in connection with his proposed dash for the North Pole during the summer of 1924. Reputed financial difficulties prevented the departure of the party at that time, but these obstacles now having apparently been overcome, the flight is to be undertaken during the appropriate season of the present year, according to statements of Lieutenant Commander Amdal, who has just left Leghorn for Norway, and who is to accompany Mr. Amundsen's expedition, which is to start from Spitzbergen.

The two gigantic hydroplanes have now been completed, delivered to Commander Amdal, and loaded on the steamship *Vaga*, bound from Leghorn to Norway. They are of the all-metal type and are propelled, respectively, by two Rolls-Royce motors of 370 horse-

power. They were built by the "Società Anonima Costruzioni Marittime," of Marina di Pisa, under the direction of Mr. Paul Berner, a German engineer. Upon completion thereof the planes were thoroughly tested and are reported to have given excellent results. Lieutenant Commander Amdal expressed great confidence in the reliability of the planes and in the successful outcome of the expedition.

Aviation engine development

In order to encourage Italian firms in the improvement in aviation engine design, the Commissariat of Aviation organized in January, 1924, a competition in aviation engines. The sum of 5,000,000 lire was allotted for distribution to the winners of the competition and only Italian firms operating in Italy were eligible to compete.

The special object of this competition is to promote the development of two particular classes of engines, namely:

Class A. Engines of 325-350 horsepower for pursuit machines.

Class B. Engines of 450-500 horsepower for observation and bombardment machines.

The rules for the competition require that the engines must be of a new type, designed after 1922, and must not be merely modifications of an old type. The prizes to be distributed are as follows:

| Class A: | Lire |
|--------------------|-----------|
| First prize ----- | 800,000 |
| Second prize ----- | 600,000 |
| Third prize ----- | 400,000 |
| Fourth prize ----- | 200,000 |
| Class B: | |
| First prize ----- | 1,200,000 |
| Second prize ----- | 900,000 |
| Third prize ----- | 600,000 |
| Fourth prize ----- | 300,000 |

The rules required that the engines must be presented for test not later than 15 January, 1925. However, the Commissariat of Aviation has postponed the date till 15 July, 1925.

This competition has aroused considerable interest in the Italian aircraft industry, and it is understood that a large number of engines will be entered in the competition.

Dornier-Wahl seaplanes for export

During a recent visit to the Dornier-Wahl factory at Marina di Pisa, it was learned that seven Dornier-Wahl seaplanes are now under construction at that plant. Four of these are for the Argen-

tine Government, and are to be powered with two Liberty 400-horsepower engines. The other three are for a Spanish commercial company, and are to be powered with Rolls-Royce Eagles.

The Dornier Co. has completed two new Wahls (Rolls-Royce Eagle engines) for the Amundsen polar expedition. These were being crated for shipment to Spitzbergen.

JAPAN

MINE PLANTERS AND MINE SWEEPERS

April, 1925

The following small mine planters in commission are stationed at the naval bases as a part of the local naval defense corps:

| Name | Tonnage | Name | Tonnage |
|-------------------------------------|---------|-------------------------------------|---------|
| Attached to Yokosuka Defense Corps: | | Attached to Maidzuru Defense Corps— | |
| Enoshima..... | 430 | Continued. | |
| Ninoshima..... | 430 | No. 44..... | 77 |
| No. 1..... | 320 | No. 45..... | 75 |
| No. 2..... | 82 | Attached to Sasebo Defense Corps: | |
| No. 3..... | 68 | Kuroshima..... | 431 |
| No. 4..... | 68 | Katashima..... | 430 |
| Attached to Ominato Defense Corps: | | No. 21..... | 295 |
| Ashizaki..... | 434 | No. 22..... | 79 |
| Kurosaki..... | 415 | No. 23..... | 76 |
| No. 5..... | 302 | No. 24..... | 69 |
| No. 6..... | 68 | No. 25..... | 63 |
| No. 7..... | 32 | Attached to Bako Defense Corps: | |
| Attached to Kure Defense Corps: | | Sokuten..... | 419 |
| Kurokami..... | 430 | No. 26..... | 383 |
| No. 11..... | 366 | No. 27..... | 75 |
| No. 12..... | 286 | No. 28..... | 72 |
| No. 13..... | 80 | Attached to Chinki Defense Corps: | |
| No. 14..... | 73 | Katoku..... | 434 |
| No. 15..... | 73 | No. 29..... | 315 |
| Attached to Maidzuru Defense Corps: | | No. 30..... | 79 |
| Toshima..... | 433 | No. 31..... | 71 |
| No. 41..... | 304 | No. 32..... | 74 |
| No. 42..... | 74 | No. 33..... | 73 |
| No. 43..... | 71 | | |

All of these vessels were designed and built especially for mine-laying purposes for the Japanese Navy.

These vessels are primarily intended for the protection of the naval stations to which attached and of adjacent ports by mining the approaches.

There appears to be no organization of small mine-sweeping vessels for the protection of navy yards and adjacent ports, since it is officially stated that no vessels of this character are stationed at naval bases nor attached to the naval defense corps.

Mine-laying submarines

- The following information was furnished by the Japanese Navy Department :

(a) The Japanese Navy at the present time has no mine-laying submarines.

(b) It has not yet been decided whether any of the submarines authorized, but not yet laid down, are to be mine-laying submarines.

(c) There are now three mine-laying submarines under construction, as follows: *I-21*, 1,000 tons; *I-22*, 1,000 tons; *I-23*, 1,000 tons.

JAPAN

JAPANESE SHIPS UNDER CONSTRUCTION

The following information was received from the Japanese Navy Department :

Expected dates of completion

Aeroplane carriers :

Akagi----- Dec. 20, 1926.

Kaga----- Mar. 31, 1927.

Destroyers :

No. 11----- Sept. 30, 1925.

No. 13----- Nov. 30, 1925.

No. 17----- Mar. 25, 1925.

No. 19----- Dec. 15, 1925.

No. 21----- Nov. 30, 1925.

No. 23----- Dec. 15, 1925.

No. 25----- May 31, 1926.

No. 27----- Aug. 31, 1925.

No. 28----- Apr. 30, 1927.

No. 29----- May, 1926.

No. 30----- May, 1927.

Submarines :

I-1----- Dec. 15, 1925.

I-2----- Mar. 15, 1926.

I-3----- May 31, 1926.

I-21----- Nov. 30, 1926.

I-22----- Apr. 15, 1927.

I-23----- Apr. 30, 1927.

I-52----- May 20, 1925.

I-53----- Aug. 31, 1926.

I-54----- Apr. 29, 1927.

I-55----- Nov. 30, 1926.

I-58----- Jan. 31, 1927.

RO-31----- End of January, 1927.

RO-64----- Apr. 30, 1925.

RO-65----- June 30, 1926.

RO-67----- Apr. 5, 1927.

RO-68----- Oct. 29, 1925.

Mine sweepers:

| | |
|------------|----------------|
| No. 4----- | Apr. 30, 1925. |
|------------|----------------|

Cruisers:

| | |
|---------------|-----------------------------|
| Jintsu----- | May 20, 1925. |
| Abukuma----- | May 31, 1925. |
| Furutaka----- | Latter part November, 1925. |
| Naka----- | Nov. 30, 1925. |
| Kako----- | Apr. 5, 1926. |
| Kinugasa----- | Apr. 5, 1927. |
| Aoba----- | Latter part April, 1927. |
| Myoko----- | Latter part March, 1928. |
| Nachi----- | Mar. 31, 1928. |

Submarines *I-21*, *I-22*, and *I-23* will have a displacement of 1,000 tons and are building at Kawasaki, Kobe. Submarines *RO-65* and *RO-67* will have a displacement of 998 tons and are building at Mitsubishi, Kobe.

JAPAN

MILITARY INTELLIGENCE SERVICE ABROAD

January, 1925

[Source : M. I. D.]

The following report has been received from a source which in the past has been found to be fairly reliable. The subject is important, and will be further followed up, but no further information is available at this time.

"In line with the military reform program now ready for introduction in the Diet, a military intelligence service abroad will be established by the Imperial Army, according to information specially derived from the most authentic source.

"*The proposed service will be started early next fiscal year (1925)* and conducted by means of a network system spread all over the world. It is most reliably informed that the staff of this new service will be composed of one major general and several field officers whose duties it will be to make various investigations and inspections in their official and other capacities whenever occasion requires for periodical reports on the military scientific progress of the general foreign countries. It has been further learned that the contemplated system will be completed in a couple of years to come, and that in the first year several field officers (colonels and lieutenant colonels) will be sent out to Britain, America, France, and Germany for preliminary services. When everything is ready to start the service, local headquarters will be created at each of the above countries under major generals who will superintend scores of officers to be stationed in various parts of the world for

consummation of such service system. The general headquarters of the new service will be established in the General Staff. The expenditure required for this service will not be estimated in the form of military bills, but will be defrayed, it is understood, out of the Confidential Service Fund."

JAPAN

MISCELLANEOUS NOTES

[From Japanese press]

Naval maneuvers

According to the Japanese press, the naval authorities will hold the annual Imperial naval maneuvers off Shikoku under the personal superintendence of H. I. H. the Prince Regent about the middle of October.

Compared with the maneuvers last autumn, the current year's maneuvers are decidedly limited in latitude and scale, the exercise being intended, according to the authorities, more for the study of strategy than for the tactical operations themselves.

The plan of campaign, as roughly mapped out, is to defend the Kure naval port from the attack of a combined fleet advancing from the seas east of Hokkaido, southward along the east coast of Honshu and westward toward Kyushu.

Light cruiser "Naka" launched

The light cruiser *Naka* was launched at the Yokohama dockyards on March 24, 1924.

On account of the great damage sustained by the *Naka* as result of the great earthquake, work on her was suspended but was resumed again from the latter part of last year.

Her characteristics are as follows: Displacement, 5,595 tons; length, 500 feet; beam, 46 feet 9 inches; speed, 33 knots; complement, 428; guns, 9; boats, 7.

Details of "Furutaka"

The following details of the Japanese light cruiser, first line, *Furutaka*, which was launched at Mitsubishi works, Nagasaki, on February 25, 1925, are furnished; some of the details have not yet been verified.

Length, 580 feet; breadth, 50 feet 9 inches; draft, 14 feet 9 inches; displacement, 7,100 tons; s. h. p., 100,000; speed, 33 knots; engines, 4 sets of turbines and 4 shafts; armament, 6 8-inch (50), 4 3-inch A. A., 12 21-inch torpedo tubes; searchlights, 3.

This vessel will be completed in November, 1925. The other three vessels of this class will be completed, one in April, 1926, and two in April, 1927.

Guns of the "Nagato"

The measurements of the *Nagato's* 16-inch guns: Length, about 10 ken (1 ken equals 6 shaku, 1 shaku equals $11\frac{5}{8}$ inches); weight, 32,000 kan (1 kan equals 8.28 pounds); weight of projectile, 270 kan; weight of powder, about 55 kan; length of time from ignition to leaving of projectile from muzzle, $\frac{3}{100}$ second; initial speed of projectile, 800 meters per second; range, 20,000 meters.

Capable of piercing the hardest steel plate of 2 shaku 5 sun (1 sun equals $1\frac{3}{16}$ inches) if placed near the muzzle.

Cruiser "Kako"

The cruiser *Kako* will be launched at the Kawasaki Dockyards, Kobe, on April 10, 1925.

Destroyer "No. 13" launched

Destroyer *No. 13* was launched at the Ishikawajima dockyards on March 23. She was laid down in November, 1922, but owing to the damages sustained to the shops by the earthquake construction was considerably delayed.

Her characteristics are given as follows: Length, 320 feet; beam, 30 feet; draft, 9 feet 7 inches; displacement, 1,400 tons; speed, 34 knots; complement, 148. Two turbines; four engines of the Technical Department type; two propellers; three searchlights; four 12 cm. guns; cost of construction, 3,000,000 yen.

Destroyer "No. 27" launched

Destroyer *No. 27* was launched March 25 at the Fujinagata dockyards, Osaka.

Two destroyers used for targets

The destroyers *Murasame* and *Shiranuhi*, both of which had been tied up at Yokosuka for some time out of commission, were towed in the vicinity of Oshima and were there used for targets for the *Nagato*, the training ship of the gunnery school, and were sunk by gunfire.

Destroyer "Okikaze" has accident

The destroyer *Okikaze* while on her way from Shimoda to Osaka collided with the *Kansei Maru* (500 tons) off Toba, near Ise, on March 22. The steamer sank immediately. The *Okikaze* was also damaged and proceeded to Yokosuka for repairs.

Aviation pageant

An aviation pageant was carried out at the Yoyogi drill grounds on March 8, 1925. The following is an extract from the Japanese press on the subject:

"The aircraft began to arrive from Tokorozawa, Kasumigaura, Tsurumi, and other aerodromes in the Kwanto district about 8.30 in the morning. The program had been contemplated for many weeks past by the military authorities to afford the Japanese public glimpses of true airmanship, and also with a view to contributing to the development of Japanese aviation, which is still in its infancy compared with the American and European aerial enterprises. The function was attended by many of the ministers of the cabinet, including the Minister of the Navy and many other distinguished personages.

"Eight private airplanes first arrived at 8 o'clock and were followed by military plane *Seal* and naval plane *Wiking*. The aerial pageant commenced at 9.30. One of the civilian aviators after conducting aerial acrobatics with other planes made a successful parachute drop. A close-file parade was then conducted by 12 military and naval planes which flew over the parade ground.

"Toward the end of the program a mimic attack of enemy planes on Tokyo was conducted. Seven enemy planes from Shimotsu aerial corps dropped bombs on a theoretical capital of Japan, a wooden house, 120 feet by 40 feet, erected in the center of the parade ground. The house immediately burst into flames. The defensive force consisted of an anti-aircraft-gun corps and machine-gun corps from the Setagaya Brigade.

"The Dai Nippon Volunteer Aviation Corps was organized yesterday, taking advantage of the elaborate aviation function under the auspices of two army officers on the reserve list. Major General Kaitsu was recommended for commander of the corps with Doctor Hiranuma, former Minister of Justice; Mr. Tokutomi, president of the Kokumin Shimbun; Admiral Takashita, commander of the Kure naval station; and Lieutenant General Takayama, as advisers. The new corps will erect a school for aviation at Funabashi at a cost of 600,000 yen."

To establish a branch aviation corps at Hiro

A branch of the Sasebo Aviation Corps will be established at Hiro beginning April, due to the fact that the only naval airplane factory is at Hiro. It was expected that an independent aviation corps would be established at Hiro sooner or later, and the establishment of the branch corps is taken as a forerunner of the ultimate establishment of an independent corps.

The line officers attached to this branch aviation corps at Hiro will be under the command of the commanding officer of Sasebo Aviation Corps, while the medical officer, paymaster, etc., will be under the command of the commanding officer of Hiro navy yard.

NOTE.—The Japanese Navy Department was asked to confirm the above and in reply stated that one-half air company was to be transferred from Sasebo to Hiro but that this air force would remain under the Sasebo air command. The one-half air company at Hiro will have duties consisting primarily in testing and experimenting with the plane output of the Hiro aircraft factory and with delivery (piloting) of the completed planes to the air stations to which assigned. It was further stated that this was in no sense an increase in the Japanese naval air strength and that, although at one time it was the intention to establish a large independent naval air force at Hiro, that intention has now been abandoned due to lack of funds.

Rohrbach flying boats for Japan.

After the inspection of the Rohrbach Works by the director of the English Aeronautical Commission in Japan, Japan's order for 8 large flying boats was increased to 15.

Flight to Peking

The Yokosuka Aviation Corps is preparing for a flight to Peking early in May.

Planes to be used are three of the 1924 type deck planes (attacking planes).

After leaving Yokosuka they will touch at Osaka and Sasebo and from there cross the sea and fly to Peking.

Flight to Kurile Islands

The Kasumigaura Aviation Corps is planning a long-distance flight in May, beginning the 1st, and to last 10 days.

It is to be a round trip to Kataoka-wan, Shimushu Island, the northernmost island of the Kurile group. The distance is about 2,500 miles.

Planes to be used are two of the amphibian *Seal* (motor N-L, 450 horsepower).

Itinerary.—First day: Leave Kasumigaura; stop at Ishinomaki; spend the night at Ominato (380 nautical miles).

Second day: Leave Ominato; stop at Nemuro and Hitokappu; spend the night at Uruppu Island (500 nautical miles).

Third day: Leave Uruppu; stop at Bureton-wan; arrive at Kataoka-wan (500 nautical miles).

Return trip: Same as above.

Four destroyers from Yokosuka and Ominato will guard the route and supply the planes with fuel.

Second Destroyer Division going north

The second destroyer division, with the exception of the *Okikaze*, left Yokosuka on April 7. The *Okikaze* is in dock, but will also leave for the north on April 11.

These destroyers are to guard two flights—the Argentine world flight and the Kasumigaura-Kurile flight. After they have finished with the above two flights they are to proceed to Alexandrovsky, together with the special service ship *Koshu*, in connection with the withdrawal of Japanese forces from there.

Navy to build oil tanks

The Japanese Navy has decided to build oil tanks at the following places:

Shimushu Island (Kurile Islands).

Ominato (northern extremity of main island of Japan).

Nemuro (eastern coast of Hokkaido).

Hakodate (southern coast of Hokkaido).

Shimoda (Izu Peninsula).
 Toba (mouth of Ise-wan).
 Fntami (in the Bonin Islands).
 Ponape (South Sea Islands).
 Yalnte (South Sea Islands).
 Truk (South Sea Islands).
 The work is to be started shortly.

Industrial employment of aircraft

[Source : M. I. D.]

The following information is believed to be substantially correct. In a previous report the number of civilian pilots as of June, 1924, is given as 257. In the questionnaire of January 1, 1925, the number of serviceable civilian planes was estimated at 150. The 65 planes given below include only those licensed by the Air Bureau; 150 still seems to be a reasonable estimate of the number of serviceable civilian planes. In any case the number is not large.

PRIVATE AIRPLANES NUMBER ONLY 65

[From the Chuo of January 24, 1925]

“It is a fact lamented by those interested in our Air Service that the Imperial Flying Society, the only organization existing as a foundational juridical person under the patronage of a great many persons, official and unofficial, in our civil aviation world, which is very slow in progress, is giving rise incessantly to internal troubles owing to the wilfull actions of a part of the directors and obstructing the more the progress of the civil aviation world.

“According to inquiries made by the Board of Air in the Department of Communications about the present condition of our civil aviation world (from sources available up to December last), the first-class pilots number 32 (land planes) and 16 (seaplanes); the second-class pilots, 39 (land planes) and 12 (seaplanes); the third-class pilots, 143 (land planes) and 27 (seaplanes). The above include 9 first-class land plane and sea plane pilots. The total is 269. Against it, the number of airplanes are: Class A (flying without restrictions except over fortified zones), 36; class B (flying within 50 kilometers of specified flying grounds), 21; class C (flying only within specified grounds), 2; for fancy flying, 6; total, 65. The figure is very low as compared with those prevailing in other powers.

Reserve aviation personnel of Japanese Navy

[Source: Official]

The following information has been obtained from official sources:

(a) The entire Japanese Naval Aviation Reserve exclusive of ground men consists of four petty officers and men.

(b) The Japanese Naval Aviation Reserve contains 60 petty officers and men classified as "ground men."

Two hundred and nine naval planes put on public sale

[From the Asahi of March 5, 1925]

The choice machines of the Kasumigaura naval air group are, for the most part, training ones for student use. Along with the future increase in number of pilots, it will become impossible to meet the requirements with the remaining craft as now they are. In view of this, it has been decided to reduce the number of small-sized planes as single-seaters or two-seaters, which will be used only for practice purposes, and to provide large-sized ones more and more. On the 10th, 209 small school machines including Avro ones are to be sold by tender; the actual turnovers occurring the following day. As naval scrapped planes are in many cases fine machines fit for use in civil aviation, bidders are likely to come rushing. After the opening of next fiscal year, the air group is to be supplied with a number of large planes each fitted with two 450 horsepower Napier engines. In order to provide against an evil day, it is deemed necessary to change all peace machines to big ones, which can keep up flying 10 to 20 hours at a speed of 200 or 250 miles per hour. At the same time there is an unlimited need for pilots that can stand such flights, speaking even from the viewpoint of securing the command of the air, so we have been told by a certain flight instructor.

NOTE.—That part of the above translation which announces the sale of 209 unserviceable planes is correct. Practically all civilian planes in Japan have been obtained from the army or navy.

LATVIA**PRESENT NAVAL ESTABLISHMENT****March, 1925**

Under terms of the Treaty of Versailles, Latvia is allowed a small naval force.

The Latvian navy at present consists of one ship, the *Virsaitis*, a trawler, a former German ship, stranded and abandoned off the mouth of the Dūna and repaired by Latvia.

The Latvian naval program, approved by the League of Nations, provides for a defensive force of 4 destroyers, 1,500 tons; 4 submarines, 400 tons; 1,500 mines; several mine sweepers.

A bill was introduced in the Diet and passed in April, 1924, providing for the construction or purchase of 2 submarines, 2 mine sweepers, 500 mines. Completion of this part of the whole program to be carried out by June, 1926. It is hoped the entire program may be under way by 1926, but this is uncertain.

The construction of the submarines was taken up forthwith. Bids were secured from Vickers (England), Electric Boat Co. (United States), and from Lorient and Normand (France). Contracts were awarded to the French. Both submarines are now under construction in France, one at the Lorient yards, St. Nazaire, the other at Le Havre (Normand).

They will be identical, resembling the French Simonet class, though smaller. Specifications:

Length, 56 m.

Beam, 4.8 m.

Draft, 3.34 m.

Displacement, 390 T. (surface), 514 T. (submerged).

Speed, 14.5 knots (surface), 9.25 knots (submerged).

Hull, double, stability 55 cm.

Machinery: Electric—submarine batteries of either "Tudor" or "Mentor" type (not decided); oil—Zolzev-Diesel.

Fuel capacity, about 18,000 liters.

Endurance, 1,600 miles at 10 knots (surface); 85 miles at 5 knots (submerged).

Armament, 1 3-inch A. A. gun; 6 450 mm. torpedo tubes; 7 torpedoes (Whitehead) carried; 2 or 3 machine guns; not equipped for mine-laying.

Complement, 31 officers and men.

It was desired by Latvia that Latvian officers be given a period of submarine training with the navy of the country in which the ships were to be built. This provision was not approved by the British Admiralty, which was one of the reasons for the rejection of the Vickers bid. Latvian officers will be, however, instructed by and with the French Navy in preparation for command of their submarines.

The commander of the Latvian Navy, Captain Keyserling, was formerly a Russian officer, with technical experience in submarine construction and operation.

Mines to be constructed for the Latvian Navy will be of the Russian 1905 type and will be made in Latvia.

NETHERLANDS

THE DUTCH MARINE ESTABLISHMENT AT SOERABAYA

March, 1925

[From a consular report]

The Dutch navy yard at Soerabaya is the base for all the vessels of the Dutch Navy in Netherlands India.

The navy yard is situated on the left bank of the Kalimas River where it empties into the Straits of Madura at Tandjong Perak, the harbor of Soerabaya. The entire navy yard comprises an area of approximately 17 acres.

The naval vessels now stationed in Soerabaya (comprising the entire fleet of Netherlands India) are as follows:

I. SUBMARINES

K-I.—Launched at Vlissingen, Holland, in 1913. Depth, 31 decimeters. Horsepower, 2×900 . Complement, 17 Europeans. Now in reserve.

K-II.—Launched at Rotterdam in 1919. Depth, 38 decimeters. Horsepower, 2×900 . Complement, 29 Europeans. Now in reserve. Guns 1- γ /7.5 cm.

K-III.—Launched at Vlissingen in 1919. Depth, 35 decimeters. Horsepower, 2×900 . Complement, 29 Europeans. Guns, one machine gun. Vessel now in service.

K-IV.—Launched at Vlissingen in 1920. Depth, 35 decimeters. One machine gun. Horsepower, 2×600 . Now in service. Complement, 29 Europeans.

K-V.—Launched at Rotterdam in 1919. Depth, 38 decimeters. One machine gun. Horsepower, 2×600 . Complement, 29 Europeans. Now in service.

K-VI.—Launched in Rotterdam in 1920. Depth, 38 decimeters. Horsepower, 2×600 . Complement, 29 Europeans. One machine gun. Now in service.

K-VII.—Launched in Rotterdam in 1921. Depth, 38 decimeters. One machine gun. Horsepower, 2×600 . Complement, 29 Europeans. Now in service.

K-VIII.—Launched in Rotterdam in 1922. Depth, 36 decimeters. Guns, one machine gun and one 8.8 cm. Horsepower, 2×900 . Complement, 29 Europeans. Now in service.

K-IX.—Launched in Rotterdam in 1922. Depth, 36 decimeters. Guns, one machine gun and one 8.8 cm. Horsepower, 2×775 . Complement, 29 Europeans. Now in service.

K-X.—Launched in Flushing, Holland, in 1924. Length, 65 meters. Width, 3.6 meters (5.6 meters when submerged). Total tonnage, 560 on surface and 810 when submerged. Guns, one anti-aircraft 8.8 cm., one machine gun, and 4 torpedo tubes. Maximum speed, 16 miles per hour. Complement, 24 men and 4 officers. Now in service.

K-XI.—Not yet arrived from Holland.

K-XII.—Not yet arrived from Holland.

2. SUBMARINE MOTHER SHIP

Pelikaan.—Launched in Amsterdam in 1921. Depth, 38.9 decimeters. Guns, 4 of 7.5 cm., machine guns. Complement, 44 Europeans and 49 natives. Now in service.

3. CRUISERS

Zeven Provinciën.—Launched in Amsterdam in 1909. Depth, 61.5 decimeters. Guns, 2 of 28 cm., 4 of 15 cm., 10 of 7.5 cm., 4 of 3.7 cm., 1 mr. 7.5 cm., 2 machine guns. Horsepower, 8,516. Complement, 409 Europeans, 38 natives. Now in service.

4. TORPEDO-BOAT DESTROYERS

Wolf.—Launched at Vlissingen, Holland, in 1910. Now out of service. Depth, 28.2 decimeters. Guns, 4 of 7.5 cm., 4 machine guns. Horsepower, 8,230. Complement, 41 Europeans, 45 natives.

Bulhond.—Launched at Vlissingen in 1911. Now in service. Depth, 28.2 decimeters. Guns, 4 of 7.5 cm., 4 machine guns. Horsepower, 8,550. Complement, 41 Europeans and natives.

Jakhals.—Launched at Vlissingen in 1912. Depth, 28.2 decimeters. Guns same as *Bulhond*. Horsepower, 8,540. Complement, 41 Europeans and 45 natives. Now in service.

Lynx.—Launched at Vlissingen in 1912. Out of service. Horsepower, 9,190 in 1924. Guns, complement, and depth same as *Bulhond*.

Hermelijn.—Launched at Vlissingen in 1912. Guns, complement, and depth same as *Bulhond*. Horsepower, 9,500. Now in service.

Vos.—Launched at Rotterdam in 1912. Depth, complement, and guns same as *Bulhond*. Horsepower, 8,650. Now in service.

Panter.—Launched in Rotterdam in 1912. Not in service in 1924. Guns, depth, and complement same as *Bulhond*. Horsepower, 8,980.

5. FLOTILLA SHIPS

Mataram.—Launched in Amsterdam in 1896. In service. Depth, 36.5 decimeters. Guns, 1 of 12 cm., 1 of 7.5 cm., 3 of 3.7 cm., 1 machine gun, 1 mr. 7.5 cm.

Koetei.—Launched in Amsterdam in 1897. Depth, 36 decimeters. Guns, 2 of 10.5 cm., 5 of 3.7 cm., 1 mr. 7.5 cm. Horsepower, 1,410. Complement, 44 Europeans and 45 natives. Out of service.

6. MINE-LAYERS

Sibolga.—Launched at Amsterdam in 1897. Now not in service. Depth, 36 decimeters. Guns, 2 of 3.7 cm., 1 machine gun. Horsepower, 1,400. Complement, 44 Europeans and 45 natives.

Serdang.—Launched at Vlissingen in 1896. Now in service. Depth, 36 decimeters. Guns, 1 of 10.5 cm., 4 of 3.7 cm., 1 mr. of 7.5 cm. Horsepower, 1,290. Complement, 56 Europeans and 46 natives.

Assahan.—Launched at Rotterdam in 1899. Depth, 36 decimeters. Guns, 1 of 7.5 cm., 2 of 3.7 cm., 1 machine gun. Horsepower, 1,350. Complement, 14 Europeans and 6 natives. Now in service.

Pro Patria.—Launched in Soerabaya in 1922. Depth, 28 decimeters. Guns, 1 of 7.5 cm., 2 machine guns. Horsepower, 650. Complement, 19 Europeans and 37 natives. Now out of service.

Krakatau.—Launched in Soerabaya in 1923. Depth, 32 decimeters. Guns, 2 of 7.5 cm., automatic No. 5 antiaircraft guns, 2 machine guns, New Vicker mines. It has two searchlights of the French "Barbier" type. Speed, 17 miles per hour. Displacement, 1,120 tons. Cost, \$400,000. Horsepower, 3,200. Now in service.

Hercules.—Launched in Soerabaya in 1909. Depth, 25.7 cm. Guns, 1 of 3.7 cm., 2 machine guns. Horsepower, 400. Complement, 14 Europeans and 6 natives. Now in service.

7. SCOUT SHIPS

Tydeman.—Launched in Soerabaya in 1916. Depth, 36 decimeters. Guns, 2 of 3.7 cm. Horsepower, 814. Complement, 36 Europeans and 34 natives. Now in service.

Van Gogh.—Launched in Rotterdam in 1898. Depth, 31.8 decimeters. Guns, 2 of 3.7 cm. Horsepower, 390. Complement, 26 Europeans and 57 natives. Now in service.

Van Doorn.—Launched in Rotterdam in 1901. Depth, 31.8 decimeters. Guns, 2 of 3.7 cm. Horsepower, 370. Complement, 26 Europeans and 57 natives. Now out of service.

Nearly all of the above-named ships are commanded by sea lieutenants of the first class, except the *Zeven Provinciën* and the

Pelikaan, the former being commanded by a sea captain and the latter by a sea captain-lieutenant.

The commander of the Dutch Navy in Soerabaya is Jhr. H. K. B. Rendorp.

There are two aerodromes and naval aviation camps in this district, one at Semarang and one at Soerabaya. The one at Soerabaya is situated about three-fourths of a mile from the Kalimas River at Tandjong Perak in the direction of Grisek. The buildings are large and will probably accommodate about 25 planes or more, though one seldom sees more than four machines in the air at one time.

The growing importance of the navy shipbuilding yard at Soerabaya is demonstrated by the successful completion of the *Krakatau*.

NORWAY

PROPOSED APPROPRIATION FOR SUBMARINES

April, 1925

The military committee of the Norwegian Storting (legislative body) has decided to recommend the appropriation of 5 million kronen for the construction of new submarines. In other respects the committee recommends various retrenchments in military expenditures.

PANAMA

ESTIMATE—ALL FACTORS

PART ONE

Republic of Panama

POLITICAL

1. GOVERNMENTAL ORGANIZATION AND METHODS OF OPERATION.

a. Form of government.—The form of government is that of a Republic whose independence is guaranteed by the United States under provisions of treaty dated February 26, 1904.

Political subdivisions.—The Republic is divided into nine Provinces. The Provinces are subdivided into municipal districts, the municipalities into corregimientos, and the corregimientos into regidurías. The Provinces are governed by a governor appointed by the President, the municipal districts by an alcalde appointed by the governor and by a council elected by popular vote. The corregimientos are governed by a corregidor appointed by the alcalde and the regidurías by a regidor appointed by the corregidor.

The municipal districts are autonomous as to their interior economy, but they can not contract debts without the authority of the National Assembly.

b. Political suffrage.—Political suffrage is extended to all citizens over 21 years of age except those under judicial interdiction and those inhabilitated by reason of crime.

The President, the National Assembly, and the municipal councils are elected by popular vote; the vice presidents are elected by the assembly; and the President appoints other officials who in turn appoint lower officials. From the nature of the case, officials so appointed are, as a rule, friendly to the central government and to the Chief Executive.

GOVERNMENT OFFICIALS

President, Rodolfo Chiari.

First vice president, Enrique A. Jimenez.

Second vice president, Carlos L. Lopez.

Third vice president, Enrique Linares.

Cabinet Council:

Secretary of government and justice, Carlos L. Lopez.

Secretary of finance and treasury, Eusebio A. Morales.

Secretary of public works, T. Gabriel Duque.

Secretary of public instruction, Octavio Mendez P.

Secretary of foreign affairs, Horacio F. Alfaro.

Supreme court:

President, Manuel A. Herrera L.

Vice president, Mamasco A. Cervera.

Member, E. Urrutia Diaz.

Member, Oswaldo Lopez.

Member, Jose Dolores.

Superior court: There are seven judges.

National assembly: Consists of 44 deputies.

c. Organization of government.—The organization of government is similar in principle to that of the United States. It is divided into three branches, the legislative, the executive, and the judicial.

(1) *Legislative.*—The legislative power is exercised by the National Assembly composed of deputies, at the ratio of one for each 10,000 inhabitants, elected for a period of four years. The assembly meets every two years on the first day of September, but may be convoked in extraordinary session by the President. Legislative acts are subject to the approval of the President, but may be passed over his veto by a two-thirds vote of the deputies.

The legislative functions of the National Assembly include: Approval or disapproval of public treaties negotiated by the executive

branch. Declare a state of war and empower the executive power to make peace. Organization of a national police force.

(2) *Executive*.—The executive power is exercised by the President of the Republic, who is elected by popular vote for a term of four years. Three vice presidents are elected by the National Assembly to serve terms coincident with that of the President. The vice presidents have no active duties except when exercising power of chief executive in the absence of the President. The President is assisted by a cabinet council (secretaries of state) appointed by him, as follows:

Secretary of government and justice.

Secretary of treasury.

Secretary of public works.

Secretary of public instruction.

Secretary of foreign affairs.

The members of the cabinet are responsible to the President and function as indicated by their titles.

“The secretaries of state are the only organs of communication of the executive power with the National Assembly. The said secretaries can propose projects of law and take part in debates.”

(3) *Judicial*.—The judicial power is exercised by a supreme court, by lower courts, by justices of the peace, and by other tribunals or special commissions created in conformity with public treaties. The President appoints the magistrates of the supreme court of justice. “In the tribunals and lower courts established by law the magistrates and judges will be named by the court, tribunal, or judge immediately superior in grade.” “The National Assembly exercises determined judicial functions,” including the power to impeach the President.

d. Stability of government.—The government is more stable than any other in Central or South America. The stability may be attributed solely to the treaty right exercised by the United States to enter the Republic to preserve and maintain order. Left to himself the Panamanian is essentially a revolutionist. Revolutions in which blood was shed occurred in 1862, 1864, 1865, 1866, 1868, 1871, 1873, 1875, 1876, 1879, 1884, 1885, 1886, 1895, 1899, and 1903. Only four of these were national in the sense of being Colombian, the balance being entirely local to Panama, and settled without interference from Bogota.

2. INTERNAL POLITICAL ISSUES AND POLITICAL PARTIES.

a. Important political issues.—There are no important political issues in Panama. There are no regional or racial differences, nor separatist movements under way. Organized radicalism is practically nonexistent.

b. Political parties.—Politics consist mainly of a scramble for patronage in which the voter follows a leader rather than a party. There is only one political party worthy of mention, the Liberal Party. This party is split into factions, the “Ins” and the “Opposition.” The party having no definite aims or policies is exploited for personal aggrandizement.

c. Foreign influences in internal politics.—The only influence in internal politics is that exerted by the United States. This influence is based on treaty rights and on the idea that self-interest is promoted by compliance with the wishes of the United States. The internal political situation has little or no effect on international relations.

3. FOREIGN POLICIES AND RELATIONS.

a. Foreign policies.—Panama may be said to be without foreign policies. Except with the United States she has no alliances nor ententes. Her relations with other countries are cordial. Recent recognition by Colombia (on May 15, 1924) has resulted in the establishment of diplomatic relations between the two countries. The definite determination of the eastern boundary line of Panama and the negotiation of a new treaty are in progress.

b. International political situation.—The international political situation is normal and without special interest except as regards relations with the United States.

The independence of Panama was secured by and is now guaranteed by the United States. It exists by virtue of this support. The interests of both nations are bound together by the canal. President Porras, in a letter published in the *Star and Herald* August 30, 1924, made the statement, “Panama exists by and for the canal. It is the canal which sustains the nation, and without the canal the Republic of Panama would not exist.”

In short, the United States exercises what might be classed as a very liberal protectorate over Panama. Independence of action is permitted only so long as the acts do not threaten the safety of the canal.

The recent abrogation of the Taft Agreement has led to pending negotiations of a new treaty the terms of which have not yet been published. But it is thought that its provisions will include complete domination by the United States over Panamanian military activities in any case where the safety of the canal is involved.

4. IMPORTANT CONSIDERATIONS.

The government is stable, but only because the United States makes it so.

There are no real political issues and no foreign policies except in respect to the United States.

ECONOMIC

1. GENERAL CHARACTERISTICS.

The Republic is very backward in economic development. Among contributing causes may be stated the ruthless oppression by early conquerors, the repeated revolutions during the past century, and the topography of the country in general. Agriculture is the chief industry. Commerce thrives, the sale of imported merchandise to tourists and the foreign-born population of the Canal Zone being an important element. Manufacturing is negligible. So far as the world at large is concerned, the economic importance of Panama is slight.

2. FOOD PRODUCTS AND RAW MATERIAL.

a. Food.—Cattle is raised in sufficient quantity to supply domestic demands.

The great possibilities in the fishing industry have been developed only sufficiently to meet local demands.

Tropical fruit is grown in abundance, there being an exportable surplus of bananas and coconuts.

Cacao, though produced in limited quantities, is of the finest quality and has brought the highest prices in London.

The sugar industry is capable of great development, but the production is not yet sufficient for local consumption. Much of the cane is used in making sirups for liquors.

The Republic is not self-sustaining in cereals, potatoes, coffee, and many of the items which go to make up a balanced ration.

Ninety per cent of food exports is to the United States and about 68 per cent of the imports is from that source.

b. Raw materials.—Valuable manganese deposits are located within 15 or 20 miles of the coast, but have not been developed because of lack of transportation facilities. A company, greatly handicapped by lack of funds, is now engaged in constructing a railway with a view to exploiting this mineral.

Timber exists throughout the Republic in great quantities, but is almost entirely wasted because there are no means of moving the products to market.

The chief articles of raw material, of which there is an exportable surplus, are manganese, vegetable ivory, rubber and gums, hides, native woods, ipecac, and tortoise and pearl shells.

The potential supply of manganese is important when war materials are considered.

3. INDUSTRIAL EQUIPMENT.

The industrial equipment of the Republic is negligible. There is no manufacturing capacity for war munitions.

4. TRANSPORTATION.

Inadequate transportation facilities exercise a paralyzing influence on every element of the economic life of Panama. The chief natural resources of the country can not be developed, solely because the products can not be shipped to even near-by markets where they are in great demand. Furthermore, the natives do not make intelligent use of the limited means at hand.

a. Highways.—The country is in general extremely rugged and broken. The heavy rains during the greater part of the year turn unimproved roads into trails. And trails are kept open only by efforts constantly applied against the dense tropical undergrowth.

There are some good roads for local use within the Canal Zone and a hard-surface road about 15 miles long leading out from Panama City. A few stretches of metalled roads have been constructed during the past three years in the Provinces of Los Santos, Veraguas, and Cocle. Work involving an expenditure of \$4,500,000 is now under way to extend this system as far east as the Canal Zone.

There is no road in existence over which a motor vehicle can travel from the Atlantic to the Pacific side of the Isthmus.

Pack transportation is of necessity extensively used.

b. Railroads.—There are approximately 170 miles of narrow-gauge railway owned and operated by the United Fruit Co. on their plantation in Bocas del Toro Province. Rolling stock consists principally of box cars used to haul bananas to the port of Almirante.

The National Government operated approximately 56 miles of narrow-gauge (3-foot) railway in Chiriqui Province, but the lack of suitable water transportation and definite sailing schedules to Panama City tends to decrease the value of this line as an economic asset. The rolling stock consists of a few freight cars in a very poor state of repair.

These roads have no strategic or military value.

For Panama Railroad, see paragraph 4 *b* below.

c. Rivers.—Rivers are small and of no importance as waterways. In a few cases they are navigable for a short distance by small boats only.

5. COMMUNICATIONS.

a. Cables.—The All-American Cables (Inc.) serves the Republic. From New York there are two duplex cables touching at Guantanamo Bay, Cuba. These cables continue across the Canal Zone by means of underground cables from Colon to Panama, extending down the west coast of South America as far as Valparaiso, Chile, and serving the Republics of Colombia, Venezuela, Ecuador, Peru, Bolivia, and Chile. From Valparaiso triplicate lines extend from Santiago, Chile, across the Andes to Buenos Aires, Argentina, and

from that point to Montevideo, Uruguay, and Rio Janeiro and Santos, Brazil.

There is a land line from New Orleans to Morgan City, La., thence by cable to Puerto Mexico, connecting with the cable to Panama and Santa Elena, Ecuador.

From Galveston, Tex., triplicate lines extend to Vera Cruz and Puerto Mexico. The triplicate lines to Puerto Mexico cross the Isthmus of Tehuantepec to Salina Cruz and extend to Santa Elena, Ecuador, touching at Puntarenas, Costa Rica. A branch cable is maintained from Salina Cruz to San Jose de Guatemala, La Libertad, San Juan del Sur, and Panama.

There is also a direct cable line to San Jose, Costa Rica, and Cartagena, Colombia.

Cable connections were recently established between Panama and Santo Domingo via Guantanamo, Cuba.

b. Wireless.—Wireless stations under control of the United States Navy, with a transmitting wave length of 600 meters, are located at the following points: Cape Mala (Punta Mala), La Palma, and Puerto Obaldia. The United Fruit Co. operates a station at Almirante, Bocas del Toro Province.

c. Telegraph and telephone lines.—The National Government operates a combination telephone and telegraph line extending from Panama to David near the western boundary of the Republic. A branch telegraph line extends from this line to the Cape Mala radio station. There is a telephone line from Panama to Chepo on the south coast and from Colon to Maria Chiquita on the north coast.

Local telephone systems are installed in the cities of Panama and Colon connecting with the Canal Zone system.

6. FINANCE.

a. Currency.—The balboa is the monetary unit of Panama. But this is purely nominal as there has been no necessity for coining it owing to the abundance of the American dollar coin which is of equal value. While native money in fractions of the balboa still exists, the larger denominations have been almost entirely superseded by American money.

b. Income and expenditures.—For the fiscal year ending June 30, 1924:

| | |
|----------------------------|-------------------|
| The income was..... | \$5, 509, 753. 91 |
| The expenditures were..... | 5, 330, 194. 08 |

| | |
|--------------|--------------|
| Balance..... | 179, 559. 83 |
|--------------|--------------|

c. Taxation.—Approximately 66 per cent of the income is derived from a tax called "commercial tax" placed on foreign merchandise

or articles of commerce which are imported for sale or consumption in the Republic. The balance of the income is derived from the interest on the \$6,000,000 posterity fund, the posts, telegraph, lottery, annuities for the canal rights, and other smaller Government utilities.

d. Principal financial institutions.—The Banco Nacional with a capital and surplus of \$1,287,798.92, is the only Panamanian financial institution worthy of mention. Officials of the institution are appointed by the President.

The International Banking Corporation and the American Foreign Banking Corporation, of New York, have branches in the cities of Panama and Colon.

e. National debt.—The national indebtedness of the Government is as follows:

| | |
|--|---------------|
| Foreign loans..... | \$6, 314, 000 |
| Internal loans..... | 417, 550 |
| Loans payable by treasury upon receipt of funds..... | 315, 000 |
| United States for paving streets and installation of sewer and water system..... | 2, 034, 081 |
| United Fruit Co. for making municipal improvements in Almirante | 392, 273 |
| Total debt..... | 9, 472, 904 |

Of the \$10,000,000 which Panama received from the United States for the leasing of the Canal Zone, the sum of \$6,000,000 was placed at interest in the United States and by constitutional precept is reserved for posterity.

The Republic also owns the \$750,000 capital stock of the Banco Nacional.

f. Financial stability.—The financial system is the most stable in Central or South America. This is due to American influence and to the control exercised by the United States through the American fiscal agent employed by the Panamanian Government.

g. Military finance.—There are no appropriations made for military purposes.

7. MAN POWER.

a. Total population.—The 1920 census shows a total population of 446,098, and the birth rate as approximately 11,000.

b. Man power available for military purposes.—It is estimated that not more than 35,000 men are suitable for military service. Due to low plane of living, the physical condition of the average man is poor. Tropical diseases are prevalent.

c. Urban and rural population.—The population of the Republic is 24 per cent urban and 76 per cent rural.

d. Unemployment.—The population is largely rural and engaged in agriculture. This, together with the fact that there are practically no industries, results in very little unemployment.

e. Emigration is negligible.

f. Immigration is controlled largely by the demand for laborers in the Canal Zone and has been at a standstill during the past three years due to the reduction of forces working on the canal.

The principal sources of immigration are the British and French West Indies.

8. ECONOMIC PENETRATION OF FOREIGN INTERESTS.

United States interests predominate in such industrial and financial institutions as exist, the Panama Canal and Railroad being the most important. The United Fruit Co. is second in importance. The street-railway system in Panama City and the telephone and electric-lighting systems in Panama and Colon are owned by American capital.

With the exception of the Banco Nacional, all financial institutions are American.

9. ECONOMIC INTERESTS IN FOREIGN COUNTRIES.

Panamanians have practically no economic interests in foreign countries.

The economic situation at present has no bearing on the international political situation.

10. CURRENT CONDITIONS.

The past year has been a very good one for the Republic. Banana shipments have decreased, but cocoa, coconuts, and manganese shipments have been regular.

A further increase in manganese exports may be expected.

Due to a favorable market, banana planting is constantly increasing, particularly in the vicinity of Gatun Lake and in the San Blas region.

11. IMPORTANT CONSIDERATIONS.

Economically, Panama is of very slight importance in the family of nations.

She is not self-sustaining in the production of food.

Her raw materials of value from a military standpoint are manganese and a limited quantity of rubber and hides.

Her industrial equipment is negligible.

Her transportation facilities are of no military value.

Her financial system is sound.

MILITARY

Panama has no standing army or navy. The constitution provides that "all Panamanians are obliged to take up arms when the public necessities demand it for the defense of the national independence and the institutions of the country."

Only the Government of the Republic has authority to import and manufacture arms and implements of war.

Panama is so closely bound to the United States that war by either would involve the other as an ally.

In such a war Panama could offer little assistance except in preventing in her own territory the formation of hostile clandestine movements against the canal.

PART TWO

The Canal Zone

POLITICAL

1. GOVERNMENT ORGANIZATION AND METHOD OF OPERATION.

The government is in charge of a governor who is appointed by the President of the United States and who is responsible to the Secretary of War.

The usual functions of government are carried out in the Canal Zone through the health, municipal, and executive departments, but many of the functions commonly considered government duties are associated with the canal operation. The cost of government is merged with that of the administration of the canal.

There is no legislative branch of government. The Canal Zone is subject to the laws made by Congress and to Executive orders issued by the President of the United States. Based upon this authority the governor issues when necessary rules and regulations for the detailed administration.

Justice is administered through district and magistrates' courts.

2. FOREIGN RELATIONS.

The Canal Zone is classed as a possession of the United States and as such has no independent relations with other nations.

"A general revision of the existing agreements between the United States and the Republic of Panama embodied in the Hay-Bunau Varilla Treaty, the so-called Taft Agreement, and the interpretations that have been placed upon both, affecting the operation of the canal and the reciprocal rights and duties of the two Governments, has been desired for some time by both, and negotiations with that end in view are pending between the State Department of the

United States and the Department of Foreign Relations of the Republic of Panama."

3. IMPORTANT CONSIDERATIONS.

The Canal Zone is subject to the laws of the United States and has no political independence.

Its government is administered by United States public officials and is as stable as the Government of the United States.

ECONOMIC

1. IMPORTANT ECONOMIC CHARACTERISTICS.

The Canal Zone consists of a strip of land 40 miles long and 10 miles wide lying in the center of the Republic of Panama and extending from the Atlantic to the Pacific Ocean. A considerable portion of the terrain is covered by Lake Gatun; the remainder is rugged and broken. Its economic importance is due entirely to the Panama Canal and the Panama Railroad.

2. PRODUCTION OF FOOD AND RAW MATERIALS.

a. Food.—Practically no food is raised except bananas, the cultivation of which is being encouraged. Pasturage exists for cattle brought in from a distance.

Nearly all food supplies except beef are imported from the United States. Cattle are obtained from South and Central American States.

b. No raw materials are produced.

3. INDUSTRIAL EQUIPMENT.

The industrial equipment consists entirely of that operated in connection with the canal.

Machine shops are installed capable of making repairs and alterations to the largest vessels now afloat.

The main dry dock is situated in Balboa. It has a usable length of 1,000 feet, a depth over the keel blocks of 29.3 at mean low water, or 43 feet at mean high water, and an entrance width of 110 feet. There is a smaller dry dock at Cristobal; it is 300 feet long, 48 feet wide at the entrance, and 15.5 over the sill at high tide.

The repairs which could be made would be of great assistance to the Navy.

In addition, there are cold-storage warehouses, hydroelectric power plants, and docking facilities.

4. TRANSPORTATION.

a. Highways.—Excellent roads exist at each end of the zone sufficient for local operation of the canal. These systems extend from Fort Randolph to Gatun and from Gamboa to Fort Amador, con-

necting with the cities of Colon and Panama, and are practicable for all kinds of motor vehicles.

But there is no transisthmian highway.

b. Railways.—The Panama Railroad connecting the cities of Colon and Panama is of especial strategic and economic importance due to the fact that it supplements the canal and would be the only means of transisthmian communication in event of the canal being closed to shipping. The rolling stock is adequate for all economic requirements and by using the reserve rolling stock would be sufficient to meet all military requirements. It is owned and operated by the United States Government. The roadbed lies just east of the canal and is in very good condition. The track is single, standard broad gauge (5-foot), with block system of signals installed.

This railroad is of vital military importance.

c. Canals and rivers.—The Panama Canal is the only navigable waterway in the Canal Zone. It has a capacity amply sufficient to meet all demands made upon it. The British battleship *Hood*, the largest in the world, recently passed through it.

With the exception of such harbor equipment as tugs, barges, and pilot boats, all shipping is of a transitory character. There are no vessels under Canal Zone registry suitable for troop carrying.

In addition to its economical importance, the influence of which is felt throughout the entire world, the canal is of the highest strategical value to the United States in that it enables rapid mobilization of the Navy in either the Atlantic or Pacific Oceans.

5. COMMUNICATIONS.

a. Cables.—Cable connections set forth in paragraph 5*a* above are available for the Canal Zone as well as for Panama.

b. Wireless.—There are two wireless stations in the Canal Zone proper. In the present practice the Balboa station is used as a receiving station while all sending is done from the Darien station. The Darien station arc set is capable of communicating with the Arlington station near Washington, D. C., or the station at San Diego, Calif., and has a maximum wave length of 10,100 meters on the arc set and 2,400 on the spark set.

c. Telegraph.—There is one telegraph line, used by the Panama Railroad.

d. Telephone.—The canal telephone system includes approximately 36 miles of pole line, 249 miles of underground circuits, 135 miles of cable, 13,728 miles of wire, 960 miles of phantom circuits, 276 miles of simplex circuits, 25 manual and 3 automatic exchanges. It is connected with the exchanges of the Panama Telephone Co. in the cities of Panama and Colon.

This system is adequate for the present requirements.

6. FINANCE.

The report for the fiscal year 1923 shows:

| | |
|-----------------------------|-------------------------|
| Canal revenues (tolls)----- | \$17, 691, 844. 06 |
| Business revenues ----- | 10, 872, 843. 36 |
| Total receipts ----- | <u>28, 564, 687. 42</u> |
| Canal expenses----- | 10, 308, 723. 06 |
| Business expenses ----- | 9, 732, 200. 86 |
| Total expenditures----- | <u>20, 040, 923. 92</u> |

Report for the fiscal year ending June 30, 1924, has not yet been issued, but toll collections are known to have been \$24,291,492.79. Assuming the canal expenses and profits to have been about the same as for 1923, the entire canal profits for the fiscal year of 1924 would be about \$15,000,000.

Expenses for the military protection are met by the United States and are not charged against the canal operations.

Financially the Canal Zone is as stable as the United States Government itself.

There are no financial institutions in the Canal Zone. The American banks in Panama and Colon are used as depositories for canal funds.

7. MAN POWER.

a. Population.—The total population on June 30, 1924, was 27,143, of which 8,990 were men. None of the male population is considered as being available for military purposes, as they are all essential for the operation and maintenance of the canal and railroad.

There is no unemployment situation. Skilled labor is recruited in the United States and unskilled in the Republic of Panama as needed.

8. FOREIGN INTERESTS.

The United States does not permit the economic penetration of foreign interests of any nature.

9. CURRENT CONDITIONS.

Toll collections reached high water mark during the fiscal year 1924. Since January, 1924, monthly receipts have steadily decreased. This is due largely to the decrease in quantity of oil shipped from the Pacific coast. Still further exhaustion of the California oil wells is predicted. Eventual development of intercoastal commerce is expected to compensate for the present falling off in traffic.

10. IMPORTANT CONSIDERATIONS.

The canal is of the highest strategical value and exercises great influence upon the economical interests of the world.

The Canal Zone is not self-sustaining as to food, and produces no raw material.

The canal is equipped with facilities for supplying and repairing the ships which pass through it.

Means of communication are ample for all ordinary needs.

Finances are sound and honestly administered.

All the man power of the zone is needed for the operation of the canal. None are available for military purposes.

MILITARY

Military protection is furnished by the United States.

Present Strength.—The present allotted strength of the regular army forces assigned to the defense of the canal is 8,935 officers and enlisted men.

Reinforcements.—Plans for reinforcement in case of necessity provided for bringing the garrison up to a war strength of 48,984 officers and enlisted men.

Reserves.—There are a number of reserve officers among the personnel employed by the canal, but it is thought that in case of emergency their services will be required in the operation of the canal, and that they will not be available for military duty.

There are no local national guard or organized reserves.

PERU

RECENT EVENTS

March, 1925, will go down into the history of Peru as an exceedingly calamitous month in many respects, for during practically the whole month she suffered a series of overlapping catastrophies (moral, physical, and economical) which, literally, piled up one on the other to such an extent that had they been experienced by most any other South American (or Central American) country they would probably have resulted in a grand orgy of political disturbances and general disorganization. Owing to the indefatigable work performed by President Leguia in such abnormal circumstances, however, and to his marvelous grip on every phase of life, action, and thought in this country, things have been forced back almost to that state of "normalcy" which existed previously, except economically, and in this the country has passed through a severe crisis of which it is not yet clear. And with it all, President

Leguia has maintained such a dignified position, exercised such a well balanced "mental attitude," and displayed such a wonderful spirit of self-abnegation, that he has merited and been accorded universal approbation and applause (except among his political enemies who have sought every opportunity to discredit him). Only persons in Lima during the past month can have any real idea of the "worries" this country has passed through in such a short period of time.

In the first place, during the early part of March the rains, which began in February, continued their devastations along the northern coast of Peru, causing not only hundreds of thousands of pounds (Peruvian) loss in value of agricultural products, cattle, etc., but literally washing away towns of considerable size and importance from an economical standpoint. Even in Lima—where it is supposed *never* to rain—there were two nights (March 9 and 11) when very heavy "precipitation" (really a fairly steady drizzle) set in and continued, uninterruptedly, for 9 and 12 hours, respectively. The damage to buildings and furniture, owing to leaky roofs, was considerable, and caused much perturbation.

In the midst of this fatality came President Coolidge's arbitration award in the Tacna-Arica problem (March 9), giving the "solar plexus" blow to the fanciful aspirations which the Peruvian people have held consistently during the past 42 years, thinking—as each succeeding generation has been taught to think—that there was never any question as to Peru's inherent moral right to take over the two lost Provinces without having to resort to a plebiscite, *regardless* of the wording of treaty on this point.

As March 9 (Monday) happened to be the day for my weekly conference with the President, I had an exceptionally good opportunity to see the first effects produced by the award on those in authority.

Arriving at the palace at 2 p. m.—while President Leguia and his cabinet, in special session, were still translating and studying the arbiter's decision (which had been delivered, in English, by Ambassador Poindexter only four hours previously)—I met the presidents of the Senate and House of Deputies and the members of the committees on foreign relations of the respective branches of Congress, all waiting to learn the "sentence." The cabinet meeting having adjourned, the waiting senators and deputies were given a brief outline of the decision by the Minister of Foreign Affairs and other members of the cabinet, each one of whom began by saying that the award, while not giving Peru all she had hoped for, was very satisfactory to the government as to the terms under which the plebiscite was to be held—explaining these latter in detail. The Minister of Foreign Affairs, later in the afternoon, reiterated this attitude of the

government before the Senate, sitting in special session, and when I asked President Leguia how he felt about the award, he told me the same thing.

Unfortunately for the peace of mind of the Government, however, the antigovernment daily *El Comercio* had, at 11 a. m., issued and widely circulated a special edition which gave a clever but erroneous "twist" to the award—this for the purpose of fooling the public sufficiently to embarrass President Leguia's administration, as has been their consistent effort in every delicate situation with which his present and past régimes have been confronted—the result being that the Lima public (which means *Peru*) had made up its fanatically prejudiced mind before the Government authorities had had a chance to speak, and immediately assumed an anti-American attitude, which was reflected to a large degree in the several speeches (in varying intensity of bitterness) made in both houses of Congress, though prompt and unanimous votes of confidence and adhesion to the Government were given by these respective legislative bodies in its attitude to the arbitral award.

To make matters worse, a general strike was declared in Lima at midnight March 9, ostensibly in the interests of the butchers who, supposedly, were being unjustly treated by the municipal government by giving a "monopolistic" concession for a general city slaughterhouse to a certain local firm, in which modern, hygienic methods were to be used exclusively, and prices for meats, etc., to be regulated by the city. As a matter of fact, a satisfactory solution had already been agreed to between the butches and the city government, but notwithstanding this the general strike was called and continued for two days, everything in Lima being tied up tight as a result. The calling of this strike at this psychological moment, in view of the attending circumstances, appeared at the time to be more than a "passing coincidence," and later proved to be so.

During this two-day period, of course, none of the daily papers appeared, consequently the full decision in the Tacna-Arica case could not be published, the result being that the "common herd," in its suspicious fanaticism, thought the Government was holding back the publication on purpose to deceive the public. Feeling was becoming intense, and numerous anti-American manifestations were held throughout the city—these being limited, almost exclusively, to some thousands of men and boys marching through the principal streets of the city vociferating many "Vivas!" for Peru and Tacna-Arica, and a similar or larger number of "Abajos!" ("down with") for the United States, Coolidge, and the arbitration award. No untoward events happened during this period, however, on account of the police and troops who were patrolling the streets in large numbers for the purpose of maintaining order during the strike,

The strike being called off Wednesday midnight (March 11)—no further demands having been made by the butchers, nor additional promises given by the municipality—papers of March 12 published the Tacna-Arica decision in full, and editorials, special articles, and propaganda leaflets (supposedly through governmental initiative) began to appear, calling on the people of Peru to read President Coolidge's award calmly and judicially, eliminate sentimental aspirations (which had suffered such a rude shock), and "get busy" on some constructive, sensible, and workable plan "to win the plebiscite," the terms of which "are generally in Peru's favor."

More public manifestations occurred during the three days following, which gradually, but surely, changed from *anti-American* to *pro-Peruvian* in character. The police and troops continued to patrol the streets as before. These "patriotic" celebrations reached their height on March 14, when the women of Peru, in their patriotic zeal, assembled at the statue of Colonel Bolognesi to do honor to the memory of the hero of Arica, and subsequently paraded the principal streets, the long procession being led by Señora Grau, widow of Peru's famous war-time admiral. Simultaneously, the "exiled sons" of Tacna and Arica held their first meeting to decide upon ways and means to assure victory at the polls in the plebiscite.

Upon the conclusion of these functions the President gave orders to the prefect of Lima to permit no more "manifestations" of any character, as the people had had ample opportunity to show their patriotic fervor, and that it was now necessary to settle down to normal life again. Notwithstanding this order, which was given wide publicity, certain "mions" decided they had not had enough, so prepared another "manifestation" for Sunday afternoon (March 15), assembling also at Bolognesi's statue. They were joined by a lot of college students, political intriguers, Bolsheviks, and general riffraff, the result being that when this mob and the police and troops collided there was trouble. The police at first barred their passage and gave warning, but the mob broke through and continued on, marching by the American Embassy en route. While no specific attack was made on the embassy, one of the policemen in front (the usual guard having been augmented) had a bullet fired by some celebrating "patriot" pass through his cap. The second collision of the mob with the police occurred in San Martin Square, near by. Once more the police warned, and once more the crowd broke through without heed, proceeding on, unimpeded, to the "Plaza de Armas," which bounds one side of the Palacio de Gobierno—in a part of which the President resides. The plaza was completely surrounded by troops, consequently the mob encountered much more serious opposition than on the two preceding

occasions. They tried again to break through, but without success. At the same time an attack was made on the palace from another direction by a different mob that had formed in another part of town, and there was a general "mix up" in which some 40 participants were wounded (equal number of government forces and "patriots") and two "patriots" killed. Within half an hour the troops (and particularly the President's cavalry guard) had cleared the streets, and patrols were stationed on every corner. Quiet was resumed throughout the city.

The whole "show" had been a revolutionary plot—under the guise of a "patriotic manifestation"—to overthrow the present government and put in a prepared "slate." Through information furnished by the government's secret police, however, the plan and instigators of the plot were fully known, and some 200 of these latter—including the director of *El Comercio* and other prominent "civilistas"—were captured and subsequently sent to the political prison at San Lorenzo. A few of the leaders, including the "President elect," Dr. M. V. Villaran, ex-rector of San Marcos University, are still at large in hiding.

Hardly had the "revolutionary scene" shifted when, on March 16, excited and urgent telegraphic messages were received from the north stating that the continuous and unprecedented heavy rains in Trujillo had not only inundated but totally destroyed that city—capital of the Department of La Libertad, the third largest city of Peru, and one of the most historical and oldest settlements of the country, having been established in 1537. As the buildings are all of adobe construction, these reports, though hard to visualize, were not unreasonable. Following so closely upon the heels of other troubles, this was simply another disaster to add to the list. It required two days of telegraphing back and forth to find that the actual situation, though extremely bad, had been considerably exaggerated owing to the unusual conditions obtaining and the immense amount of damage really done, some 400 houses, churches, etc., having been "melted" (by the rain) beyond repair or totally destroyed.

On March 18 the rains in the interior (to the northeastward of Lima) caused such damage to the power plant, some 40 miles away, that for one week Lima (and suburbs) and Callao were left in total darkness; trams ceased to function; local industries were paralyzed; and daily papers had to suspend publication, so that no news of either local or general character were known to the public for days. During the first part of this period the Rimac River and one of its main branches which runs through a part of Lima rose to such an exceptionally high level that it overflowed its banks in many places and caused considerable damage to buildings close by, and inundated the basement of the new House of Deputies, which (though

partially occupied) is still in the course of construction. Owing to the general state of unrest prevailing, to the large number of employees thrown into idleness by the paralyzation of local industries, and to the threatened "manifestation" *in memory* of the "patriots" who had been killed on the 15th, a large force of extra police were placed on patrol and no automobiles permitted to pass on any street (either in the city or its suburbs) after midnight during the period that the city remained without lights.

Although local conditions bettered in Lima, in a way, with the spasmodic and irregular reappearance of light and power, the continuous and heavy rains wrought increasing havoc in the interior and along the coast. Fertile valleys were converted into useless swamps, and even lakes of considerable size were formed in other cultivated districts. Telegraphic lines were destroyed and railroads washed away in places. In other localities communication was entirely cut off, leaving the inhabitants of these damaged regions homeless, helpless, and without shelter, food, medicine, or other necessities. Epidemics of grippe appeared and sickness began to spread. The new washouts along the Central Railway (to Oroya) have put an effectual stop to all transportation on this line until repairs can be effected (estimated at from three to four months), thus reducing the country's most valuable source of income—export duties on the "Cerro de Pasco" copper and silver shipments and import duties on all materials used by the same company—to nil. This has produced an economical crisis (in connection with the reduced returns of the railway company also) never before encountered and will require much time from which to recuperate, particularly when taken in connection with the enormous overexpenditures made during the recent Ayacucho Centennial Celebration. As a very large portion of Lima's food supply (meats, vegetables, and fruits) comes from the interior, the damage to cattle and crops, and the washouts along the railway line produced a shortage in provisions which made the prices soar. To partially overcome this, the Government, by supreme decree, is now permitting (for a period of 90 days) the entry of cattle and foodstuffs free of all duty. This also reduces the already decreased custom receipts.

On March 23 the announcement was made in the local press of General Pershing's appointment as president of the Plebiscite Commission. The news was received here with the greatest satisfaction, as the General had made a most favorable impression during his attendance as special ambassador to the Ayacucho Centennial Celebration in December last. General Morrow's subsequent appointment to the commission (to determine boundary questions) is also looked upon with favor on account of his previous record of activities. Up

to the present time the Government has given no intimation as to whom will be selected as Peru's commissioner, though several names have been mentioned—Salomon (Minister of Foreign Affairs), Porras (ex-Minister of Foreign Affairs), and Polo (president of the Arbitration Commission in Washington). It might be added that the "picking" is poor, as aside from President Leguia there are none others in Peru to be considered in the same category with either General Pershing or Edwards, of Chile. It is even rumored in some circles that Peru will neither appoint a commissioner nor take any part officially in the plebiscite. This is repeated only to show the trend of thought.

RUSSIA

ARMY AIR FORCE

[Source : Fairly reliable]

Aviation Squadron No. 1.—Podosinki, near Moscow; 48 planes. The following belong to this: Two fighting-plane squadrons; 3 divisions of 8 planes each; 1 scouting squadron, designated "Lenin," 24 airplanes.

Aviation Squadron No. 2.—Kiew; 48 planes. The following belong to this: Three fighting-plane squadrons; 3 scouting squadrons.

Aviation group of the west military district.—Smolensk: Four fighting squadrons; 2 scouting squadrons.

Independent fighting-plane squadrons in Peterhof, Bobruisk. Odessa Katschinska Field (Krim).

Scouting-plane squadrons in Gomel, Cherson.

Technical squadron in Moscow.

It is probable that each army corps has its own scouting divisions, designated by the number of the corps. Nos. 1 to 17 are known to exist, and it is probable that there are others numbered from 18 to 21. There is also a division, No. 32, stationed in Taschkent.

Leningrad military district, 3 divisions, Peterhof.

Moscow military district, 2 divisions, Moscow and Tambow.

North Caucasus military district, 2 divisions, Rostow.

Volga military district, 1 division, Samara.

West military district, 3 divisions, Witebsk, Gomel.

West military district, 3 divisions, Witebsk, Gomel, Brjansk.

Caucasus army, 3 divisions, Tiflis, Batum, Baku.

Turkestan front, 3 divisions, 2 in Taschkent; 1 in Samarkant.

Siberian military district, 1 division, Nowo Nikolsjewsk.

V. Army. 3 divisions, Tschita.

Independent fighting plane squadrons are known to be in the Caucasus, with the V. Army, and on the Turkestan front. The two latter divisions are numbered 11 and 12. It can therefore be assumed that there are 12 independent fighting plane divisions.

Airship Artillery Divisions:

Moscow military district, Kuntzewo.

Ukranian military district, Kiew.

Moscow military district, Klementkewski Camp.

Leningrad military district, Luga.

(Two divisions.)

West military district, Mohilew.

Ukranian military district, Odessa and Kiew.

Siberian military district, Krassnojarks.

Wolga military district, Samara (formerly Rogatschew).

Armored Balloon Divisions:

1. Division west military district, Shlobin.

2. Division Ukranian military, Kiew.

3. Division Moscow military, Moscow.

Aircraft Divisions in Siberia

Omsk: One division, and the 19th independent division.

Tomsk: One group of 4 aeroplanes of the 19th independent division. The machines are all old.

Irkutsk: One group of the 16th Siberian division and 4 old Farman machines allocated to this division for training purposes.

Tschita: One squadron of the Far East and the Pacific Ocean; 2 squadrons of 6 aeroplanes each. The formation is not yet clear. The designation of the Pacific Ocean squadron will be, or perhaps has already been, changed. In the Far East division there are 4 de Haviland machines, the rest are all old. In the Pacific Ocean squadron, there are 2 Fokker machines, 2 Vickers, and 2 old Moranis.

Blagoweschtschensk: One group of the 4th Siberian division of 4 old planes. A division of the "Far East Ultimatum" is on the way.

Nikolsk-Ussurisk: The second group of the 4th Siberian division is here temporarily. Among the planes there are 2 repaired Haviland planes.

Nikolsjewsk-Amursk: A field is ready for use in intermediate landings.

Wladiwostok: One Siberian division consisting of 6 Breguet machines. There are also 8 aeroplanes for coast observation on the

Ochot Sea. Most of these have not yet arrived but are still en route. Seaplane division has old seaplanes of Russian construction and 2 new planes which were purchased in America. There is a staff and a group of the "Far East Ultimatum."

Russian Aeroplanes in China

The Russian aeroplanes which were sent to China were at first all old constructions. September 24 a second division was sent to China (officially to Siberia), consisting of the newest de Havilland type and several Fokker planes. The Chinese have received 62 planes in all in the period from July 1 to October 15, 1924. Some of these planes were dispatched to Siberia in July and only reached China in August. No planes were sent prior to this date and none since. All planes were delivered to Chang Tso-lin. The first Chinese aviators came to Russia in the beginning of the summer of 1924 for purposes of training. In the spring, Russian aviators requested permission to be detailed to China, but the request was not granted at the time.

A few half-intelligent Tibetans have arrived in Uralsk to be trained as aeroplane pilots. At the present time, there are 21 persons in Uralsk—these of Chinese origin. At the international school in Lefortow there are a few students from Tibet.

SPAIN

CRUISER "MENDEZ NUÑEZ"

[Source : Fairly reliable]

Principal characteristics.—The total length of the *Mendez Nuñez* is 140.82 meters (462 feet) ; it has an extreme breadth of 14.02 meters (46 feet) ; and, a depth of 7.22 meters (23.68 feet). Its displacement is 4,725 metric tons and its average draft is 4.42 meters (14.50 feet).

Details of the ship.—This new boat is protected by a belt of high-tension steel of varying thickness. The parts which protect the engines and boilers are more than 50 millimeters (1.96 inches) thick. The lower deck above the engine room is 25 millimeters (0.984 inch) thick.

The conning tower, situated at the entrance to the bridge, has armor 150 millimeters (5.90 inches) thick; the central station placed at the bow on the upper deck is communicated with by means of an order tube also armored with special cast steel 100 millimeters (3.95 inches) thick.

The hull is of high-tension steel, which, like the protecting belt, is of Spanish manufacture. It has a double bottom which extends under the boilers and engines and groups of storerooms at the bow and stern. The compartments of the double bottom will be used for tanks for storing liquid fuel and reserve water for the boilers.

The boiler rooms have two longitudinal screens between which and the sides of the ship are the coal bunkers, which have a capacity of 1,300 tons.

There are also fuel tanks forward of the boiler rooms and aft of the engines which are large enough to carry 500 tons of petroleum.

The crew and their quarters.—The total crew, including officers, will be 320. The marines are lodged in ample orlops in the fore-castle, in which on the lower deck a part of the sailors and the petty officers have their rooms. The engine and boiler room men have their lodgments in the extreme after end of the lower deck. The officers have theirs on the same deck. The storerooms for divers kinds of cargo are in the bow, as are those for food stores.

Offensive power.—There are six cannon of 152 millimeters (6 inches): three are placed forward, one in the center, and one on each side: of those placed aft, two are on the super-structure.

The four forward 47-millimeter (1.83-inch) guns are mounted on platforms situated above the engine rooms (guardacalores).

The ammunition service is divided into two groups: that of the stern for serving the 152-millimeter (6-inch) guns, and that of the bow for the guns of the fore-castle, the 47-millimeter (1.83-inch) guns, salutes, portable arms, etc. For the gunners' division there are two telemeters, one aft and one forward. The ship also has two telephone stations.

Boats.—It carries eight, one of which is a gasoline launch.

Electric energy.—Two dynamos in the engine room supply the current for the vessel. They are run by steam engines. The lighting is electric. There are four 610-millimeter (24-inch) searchlights, two in the bow and two in the stern.

Wireless telegraph.—The ship is provided with a wireless station that has a range of more than a thousand kilometers—621.36 nautical miles.

Boiler department.—It has 12 boilers of the "Jarrow" type of three collectors (colectores) that work at a pressure of 165 pounds to the square centimeter (1,064.51 pounds to the square inch). They are installed in four compartments and function under a system of forced draft with closed rooms. The said compartments or rooms are divided by stanch transversal screens.

Of the 12 boilers, 6 are arranged to burn coal and oil simultaneously, while the other 6 are made to burn only oil.

SWEDEN

NAVAL NOTE

Naval policy.—Owing to the increased naval activities in the Baltic, it has become more than ever imperative to take steps to replace the obsolete vessels. The fighting power and installations of the old ships would never be commensurate with the demands of any future war. The winter maneuvers have shown that the light ships are not strong enough for ice service and the maneuvers also suffered from the lack of being able to represent a really modern up-to-date opponent.

Personnel.—It is felt that the training period is all too short and it is feared that it will be curtailed even more.

Material.—The two new torpedo boats are being constructed by Thornycroft. Oil burners are being installed (partially) in the armored coaster *Manligheten* for experimental purposes. A new floating dock of 18,000 tons capacity has been put into commission in Göteborg.

SWITZERLAND

VISIT TO THE WORKS OF SULZER BROS.

The plant of Sulzer Bros., Winterthur, Switzerland, has under construction an experimental 8-cylinder, single-acting, 7,000 brake horsepower, 2-cycle, submarine engine for the French Navy. This engine is rated at 280 revolutions per minute, cylinder diameter 650 mm., stroke 680 mm. The pistons are oil cooled, all castings are of steel, except the cylinder liners. Their general practice up to the time of this engine has been to use water cooling throughout, but it is understood that the French Navy insisted upon oil cooling of the pistons for this engine. The crank shaft is constructed in three sections, one with two throws for injection air compressors and two sections of four throws each for the cylinders. The crank-shaft diameter is 370 mm. The dry weight of the engine, including the turbo blowers for scavenging, is approximately 60 pounds per brake horsepower. The turbo blower for scavenging is direct, current, electric driven of approximately 500 horsepower and operated at approximately 3,000 revolutions per minute. The turbo blower is being built by Brown Boveri, Winterthur.

I was also informed that the French Navy have under construction in France two other experimental submarine Diesel engines of 6,000 brake horsepower. One is being built by Schneider and the other by Cartiers (?).

The largest commercial engine which they now have under construction is a 6-cylinder, 2-cycle, single-acting, 4,000 brake horsepower, 125 revolutions per minute for Shanghai for driving an electric generator. The cylinders are 760 mm. diameter, 1,300 mm. stroke. At the time of visit the engine was on overload test of 5,000 brake horsepower, and it had been less than 24 hours since first started test on the water brake. The engine was operating very well.

This company has proposed to the French Navy a Diesel engine installation of 40,000 shaft horsepower for a cruiser or aircraft carrier. The installation consisted of four 8-cylinder, 2-cycle, single-acting engines, 165 revolutions per minute, each direct connected to one of the four shafts. There were two engine rooms, each 22 m. long, 18 m. wide, and 10½ m. high. The engine itself was 19 m. long. The 10½ m. height of engine room allowed for dismantling.

When questioned as to the cause of our pistons cracking in the Bulsch-Sulzer engine, they stated that their practice has always been to use cast-steel heads for the pistons, and that our trouble was undoubtedly due to the use of cast iron which was not able to withstand the temperatures encountered. They also stated that forged-steel heads would probably prove satisfactory, but that great care should be taken to prevent unequal expansion of the forging. In order to prevent this, they suggested that after rough turning the forging should be heated to 500° to 600° C. and allowed to cool slowly. They even suggested that the procedure might have to be repeated.

Their practice is to use the same end clearance for all the piston rings of one cylinder for both the power cylinders and the air-compressor cylinders. They use cast-iron cylinder liners of about 180 Brinnell and piston rings of from 165 to 170 Brinnell. For wrist pins they use a bronze bearing, after having tried a babbitted bearing and discarded it. They use a skew gear for driving the vertical shaft, which, in turn, drives their cam shaft. The gear of the main engine shaft is bronze and one of the vertical shaft forged steel.

When questioned as to their willingness to build a single-cylinder engine of 2,000 horsepower at 45 pounds per brake horsepower, they stated that they would not like to undertake this, but would undertake to build one of 1,500 brake horsepower with the above weight.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

NUMBER 6—1925

JUNE, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

NUMBER 6—1925—JUNE, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

BRAZIL:

Page

| | |
|--|---|
| Matto Grosso flotilla and arsenal..... | 1 |
| Naval operating bases..... | 3 |
| A visit to Governador air base..... | 5 |
| Invention of new powder..... | 6 |

BULGARIA:

| | |
|----------------------------|---|
| Political conditions | 7 |
|----------------------------|---|

CHINA:

| | |
|------------------------------|----|
| Chinese mission abroad | 10 |
|------------------------------|----|

DENMARK:

| | |
|---------------------------------------|----|
| Baltic cruise of Danish squadron..... | 10 |
|---------------------------------------|----|

FINLAND:

| | |
|---|----|
| Proposed Finnish naval budget vetoed..... | 11 |
|---|----|

FRANCE:

| | |
|-------------------------------------|----|
| Aircraft carrier <i>Bearn</i> | 12 |
| Naval notes | 12 |

GERMANY:

| | |
|--|----|
| The Becker engine..... | 13 |
| A visit to Maschinenfabrik, Augsburg-Nurnberg, A. G..... | 14 |
| The Rosenbaum gyrorector..... | 15 |
| Scientific expedition..... | 16 |
| A discussion of two recent books on the submarine warfare..... | 17 |
| Naval notes | 25 |

GREAT BRITAIN:

| | |
|-------------------|----|
| Naval notes | 26 |
|-------------------|----|

ITALY:

| | |
|---|----|
| Mediterranean problems and interests..... | 28 |
| Bagnulo motors..... | 30 |
| Naval notes | 31 |

JAPAN:

| | |
|---|----|
| Visit to Kasumiganra naval air station..... | 34 |
| Production of munitions..... | 39 |
| Notes on Taiwan (Formosa)..... | 44 |
| Political notes..... | 45 |
| Miscellaneous notes..... | 46 |

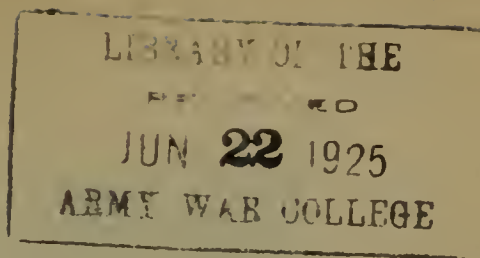
JUGOSLAVIA:

| | |
|--------------------|----|
| Aviation note..... | 53 |
|--------------------|----|

| | |
|--|------|
| MOROCCO: | Page |
| Notes on present conditions----- | 53 |
| NETHERLANDS: | |
| New destroyers for Dutch Navy----- | 60 |
| NEW ZEALAND: | |
| Estimate of the military situation----- | 60 |
| POLAND: | |
| Proposed budget for naval aviation----- | 63 |
| RUSSIA: | |
| Scheduled visit of Soviet fleet to Copenhagen----- | 63 |
| SIAM: | |
| New gunboat launched----- | 63 |
| SWEDEN: | |
| Notes ----- | 64 |
| UNITED STATES: | |
| Passports for officers going abroad on leave----- | 65 |

The material for the Bulletin is largely derived from service sources, and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.



BRAZIL

MATTO GROSSO FLOTILLA AND ARSENAL

April, 1925

MATTO GROSSO FLOTILLA

This flotilla of two gunboats, the monitor-type 450-ton *Pernambuco* of two 4-inch and four 37-millimeter revolving cannon and the 200-ton *Oyapock* of two 1-pounders and two 37-millimeter revolving cannon, is based at Ladario, some 5 miles below Corumbá on the Rio Alto Paraguay (Upper Paraná River).

The *Pernambuco* has not been docked in 10 years. The bottom is leaking slightly in unknown places. It is not known whether it is safe or not to haul her out on the ways at the arsenal. The ship has only part of a crew and has not cruised or had target practice in a long time. There are nine idle river pilots on board.

The *Oyapock* has not moved in some three years. She is said to be in good shape, has been recently docked on the ways at Ladario, and her boilers have been retubed. Her dynamo, which was sent to Rio de Janeiro in February, 1923, for repair, has not been returned. There is half a crew on board and six idle river pilots.

The question of training river pilots is an important one. These pilots in the flotilla used to pilot the Lloyd Brasileira ships between Corumbá and Montevideo. The Paraguayan Government has recently ruled that their pilots must pilot all ships in their waters. It is said that Brazil, Argentina, and Paraguay have, by a treaty made year ago, agreed that the River Paraguay is an international waterway and free to all. However, the powerful union organization—Liga Maritima—consisting of all pilots, steamer and crews and waterfront workers in Paraguay is said to have backed and saved the Government during last year's revolution and has forced the Government to make this ruling. The Brazilian pilots will soon lose their knowledge of the river, while the officers and men of the noncruising flotilla do not know it and are not learning it.

During the Paraguayan revolution, which ended last year, an Argentine gunboat was off Asuncion during the entire time. This fact, together with many Argentine merchant ships on the river, gives this country considerable influence in Paraguay. My hotel bill in Asuncion was made out in Argentine money. If Brazil had sent a river gunboat down to Asuncion during this revolution and would

have the flotilla cruise regularly on the river, this would increase Brazilian influence in Paraguay.

There is little definite knowledge of the River Paraguay; that is, the strength of current, depth of water, seasons of high and low water, etc. There are no charts, navigation marks, lights, buoys, or tide gauges. One graduated board for a tide gauge was nailed to a pile well under the pier at Corumbá, but no record was kept of the readings and no one knew to what part of the river the readings were applicable. It is said that during low water in January ships drawing not over 8 feet can come to Corumbá, while in July ships drawing 16 feet can come. Corumbá is the head of navigation of this River Paraguay and is some 3,000 kilometers above Buenos Aires. A Buenos Aires paper, the *Standard*, on December 21, 1923, reported that Argentina was having a new tide-recording apparatus constructed at the Riachuele shops, at a cost of \$800 each, for use in the Paraná, Uruguay, and Plata Rivers, in order to keep records and to predict the rise and fall of the waters.

Conclusions

At present, when officers and men are sent to the Matto Grosso flotilla it seems to them like being sent into the desert to pass time. Duty here could be made very instructive and interesting if the complements of the ships were filled, regular target practices held, cruises made down the river at least every four months (once to Montevideo and twice to Asuncion or Corrientes), and a ship sent to Asuncion during revolutions there. Install a recording tide gauge at the naval arsenal and make a regular study of river currents and the rise and fall of the water. Do a little surveying, putting navigation marks where shoals make out and channels change. Make a regular chart of the river. Replace the 37-millimeter revolving cannon with 1-pounders, or if practicable with 3 or 6 pounders. Insist on Brazilian pilots doing the piloting on Brazilian ships all the way from Montevideo to Corumbá.

ARSENAL MARINHA MATTO GROSSO

This arsenal was established some 50 years ago and few improvements have been made since. Work was in progress in the three shops, namely, machine, construction, and pattern. Some 120 workmen were employed. An army river boat was on the ways being overhauled, new plates put in the bottom, and general repairs being made to the paddle wheel and machinery. Also, there were four private boats under repair.

It was said that the owners of private boats were required to furnish material for repairs, even to tools and coal for the forges, which

complicates work greatly. The owners then pay into the custom-house at Corumbá an amount equal to the workmen's wages plus 10 per cent. This money goes to the treasury, and the naval appropriation loses an amount equal to the workmen's wages paid by the arsenal. This money paid in for work used to be credited to the arsenal, which supplied a fund for purchase of tools, materials, etc., and made the arsenal an asset to the navy. The last minister of marine is said to have changed the system and turned the money over to the treasury.

The lower end of the ways have settled in the mud somewhat, so it was not considered safe to haul out the 450-ton *Pernambuco*. The present capacity of the ways is not known.

Conclusions

The ways should be inspected, tested, and put in condition to take at least a ship of 600 tons, more if practicable. The arsenal should be made an asset to the navy by turning over money for private repairs to the credit of the yard.

BRAZIL

NAVAL OPERATING BASES

NAVAL OPERATING BASE, RIO GRANDE DO SUL

The outlook here for a secondary outlook base is very bright. In the event of war to-morrow Brazil could base all submarines, destroyers, and cruisers here with their tenders. A little work is needed to prepare a place for aircraft. Ships drawing 28 feet can enter the port and secure to the long dock (2 kilometers long) in the new port. This is about half occupied with merchantmen. There are eight large warehouses along the dock, which is well equipped with electric cranes, and there is a space in the rear of the buildings for 24 more warehouses. Next comes a channel leading to the old port.

There are some 800 meters of undeveloped waterfront here, two private ship-repair plants (50 meters each), and then the naval property (215 meters on the waterfront and 250 meters deep). Next comes about 1 kilometer of dock in the old port. The *Deodoro* is secured here. The captain of the port occupies the naval property. The seawall here is incomplete and the land not all filled in. At least half of this could be given over to seaplanes. No need of repair shops and ways here, as both private companies adjoining have a repair plant and can haul out ships of 1,200 tons on the ways.

The port also has ways and repair facilities. At present a tug and a barge are under repair on these ways.

Conclusions

The navy does not need to spend money here for a base, shop, ways, etc., but only enough to prepare for using aircraft.

NAVAL OPERATING BASE AT FLORIANOPOLIS

The outlook here is not good. The captain of the Costeria boat (displacement, 3,000 tons; draft, 13 feet), on which my trip up the coast was made, would not enter the south channel, as he said the buoys could not be depended upon, the turn was a bad one at the entrance, and not safe for the vessel. Upon rounding the north end of the island the ship anchored about 5 miles to the northward of Florianopolis. The north entrance channel here was dredged some 12 years ago but has not been touched since. There is hardly 12 feet of water at present.

After discussing all the ports along here, Imbituba, Florianopolis, São Francisco, and Paranaguá, and studying all the charts, it seems clear that there is no suitable anchorage for battleships where there would be protection from all winds and where net protection against submarines could be provided. It was said that an officer was at Florianopolis now in command of a base to be developed.

Conclusions

The battleships could not use Florianopolis as an operating base without dredging out a place possibly to the eastward of the north end of the north dredged channel. At present, in case of war, it might be necessary to base them as far north as São Sebastião. This question should be settled before work on a base is started.

The navy should not spend money on new shore establishments until a balanced fleet has been provided. At least, not until one division of submarines, two of destroyers, and one of cruisers have been provided. The fleet is the navy. The fleet must be given precedence in new expenditures of money.

A careful strategic study should be made of the southern coast of Brazil. Operating and air bases should be selected to meet the needs of a campaign. The following new construction doctrine is suggested: "No money for new construction on shore until a replacement fleet has been provided," the replacement fleet to consist of one division of submarines, two of destroyers, and one of cruisers.

BRAZIL

A VISIT TO GOVERNADOR AIR BASE

April, 1925

The only Brazilian Government aerial base is located on the island of Governador, Guanabara Bay, Rio de Janeiro. The naval aviation field is on the western end of the island and has located at one end of it the aviation school, consisting of five buildings of modern construction—not completed—one of these buildings at present housing 43 petty officers in addition to serving as an administration building.

Building No. 2 houses 50 officers and contains several rooms for recitation and lectures.

Buildings No. 3 and 4 are enlisted men's barracks, capacity 100; and there is a small building, No. 5, which at the present time is being used as a sort of fuselage or repair shop. There were about 12 people working in this shed during my visit, 2 of whom were boys. From reports, the Brazilians are excellent woodworkers at this aviation school.

FLYING FIELD

The flying field between the aviation school and the hangars for land planes is 800 meters in length. The mean width of this field is about 1,200 meters. The length on a diagonal is 1,800 meters. This field is very sandy and marshy in places and will require considerable work and expenditure of money before it is ready for continuous use as a flying field.

At the other end of the field, and opposite the school, are located two large hangars for land planes, facing the school. These hangars are each about 500 feet long and 75 feet wide.

On the water front are three smaller hangars for flying boats and hydroplanes. The ramps to these hangars are uncompleted and the railway an improvised one. The distance between openings in these hangars is about 95 feet. These latter hangars in size are 200 feet by 180 feet.

At this end of the field, which is known by the name of Aviation Base, or Central da Aviação, there are also two buildings under construction to serve as barracks for enlisted men similar in size and capacity as other barracks at the aviation school.

At the aviation base and school there are at present no shops or fire protection. This aviation base, including school and all flying activities, was supposed to have been completed in 1922. It appears now to be about half completed, and the writer is unable to ascertain the completion date, due to Brazil's financial condition.

MATERIAL

The material at the Brazilian aviation center is as follows:

| | Operating | Storage |
|---|----------------|-----------------|
| F-5-L flying boats----- | 5 | 5 |
| M F flying boats (Curtis)----- | 3 | 0 |
| H-S-2 flying boats----- | ¹ 1 | 2 |
| N-9 hydroplanes----- | 3 | 2 |
| S V A land planes, 2-seater, Italian----- | 5 | ² 11 |
| Snite land planes, 2-seater, 180 horsepower engine----- | 8 | 2 |
| J N Curtis land planes, 2-seater, training----- | 1 | 5 |
| Avro land planes, 2-seater, training----- | 4 | 0 |
| Total----- | 30 | 27 |

NOTE.—The J N Curtis land planes were donated by the State of São Paulo. Planes under "Storage" are not only stored as the heading indicates, but are stated to be in general poor condition.

PERSONNEL

At the present time the personnel at the Aviation Base is:

- 1 captain, commanding base and air activities.
- 1 commander, executive of school.
- 4 other line officers attached to base.
- 1 medical officer.
- 2 supply corps officers (paymasters).

There are four enlisted men pilots who are said to be very good. Seven officers have wings; only three are pilots.

At the school three officers are under instruction and four enlisted men. At present the maximum capacity of the school appears to be 50 officers and 200 men.

ISLAND OF ENXADAS

The Island of Enxadas in Guanabara Bay is a "ready station." The policy from now on is to keep two F-5-L flying boats with two officers and five men to each machine stationed on this island and ready for immediate call in case of revolutionary activities or other needs. All other aviation activities are on Governador Island.

BRAZIL

INVENTION OF NEW POWDER

It has been learned that a young Brazilian chemist has invented an explosive named "Super Rupturita." This explosive has been patented under a secret patent in Brazil. From conversation with a chemist employed in the department of agriculture it is learned that

¹ Santos.

² These 11 for army.

this explosive is somewhat similar to nitro cellulose powders, but more sensitive. This particular chemist informed me that in his opinion it was a very good powder and that its employment would be successful in demolition work and for use in aerial bombs, but in his opinion it was too sensitive to be used as an explosive charge for armor-piercing projectiles.

A commission has been named by the minister of marine to make a complete study of experiments with this national explosive, "Super Rupturita," and its military application.

Any future developments concerning this powder the naval attaché may obtain will be reported.

BULGARIA

POLITICAL CONDITIONS

May 1, 1925

(Prepared by M. I. D.)

Bulgaria is in the throes of a serious uprising which may shake the very foundations of eastern Europe. To dismiss it with a shrug as the offspring of Moscow propaganda would be a mistake, for the causes leading up to the present situation are many and varied. As a matter of fact the dissension in Bulgaria is of several years standing, dating back to the close of the World War, or even prior to that, when it is considered that one of the chief factors in the present trouble is the Macedonian question.

Running in and out of the tangled skein of Bulgarian politics are four threads—the red of Moscow, the green of the Bulgarian agrarians (the peasant internationale), the white of the military or reactionaries, and the purple, shall we say, of the Macedonians, purple being appropriate because of the split into the federalist group with Moscow leanings and the blue Alexandroff or antonomous faction. These colors have been so variously combined and interwoven that it becomes a delicate task to trace the intricate pattern of intrigue to its original elements.

Alexander Stamboulisky, the head of the agrarian party, came into power subsequent to the victory of the Allies when King Ferdinand and his premier, Radoslavoff, fled to Germany. Then followed a régime of political oppression of all who did not adhere to agrarianism, which as interpreted by Stamboulisky meant elevation of the country over the town—a policy which tended to foster animosity between the peasantry and the industrialists. By his steam-roller methods all opposition was stamped out or driven under-

ground. The military league, a group of ex-officers whose careers had been cut short by the provisions of the treaty of Neuilly limiting the size of the Bulgarian Army, continued to function secretly, as did also the Bulgarian Macedonian revolutionary committee. The latter had steadily refused to accept the Paris peace terms and claimed for Bulgaria the whole of Macedonia ceded to Serbia and Greece. At its head was the picturesque Todor Alexandroff, who conducted raids on Serbian territory in the hope of inciting hostilities between Bulgaria and Yugoslavia which might terminate with more favorable terms for Bulgaria regarding Macedonia.

It was in connection with Stamboulisky's attempt to create better relations with Bulgaria's neighbors, at which time the peasant premier inaugurated severe measures to put down the irritating forays into Serbia from the Bulgarian hills along the border, that the Macedonian party first became actively engaged in opposing the Stamboulisky régime; and it undoubtedly required little persuasion on the part of the military league to obtain the support of the Macedonian comitadjis in the coup d'état of June, 1923, when Stamboulisky and his brother met their death at the hands of assassins, and Professor Zankov became the head of the new government. Since practically all the agrarian leaders were either killed in the surprise attack or forced to flee the country, little resistance was met. Moreover, the coup had been nicely timed to immediately precede the harvest, when resistance by the peasant meant the abandoning of his crops. But though temporarily foiled, the peasant was far from subdued, as manifested in the abortive rising of the following September.

It was at this stage that Moscow entered the game. In keeping with their usual propensity to fish in troubled waters, the communists sent agents to the Balkans to aggravate the Bulgarian situation. Proposals were made to the Macedonian revolutionary committee for the extension of funds to carry on their marauding expeditions into Serbia. These proposals Alexandroff spurned; but Alecco Pasha and other minor leaders secretly connived with the Bolshevik agent and planned and executed the removal of Alexandroff as an obstacle to their scheme. They in turn were assassinated at the order of Protogneroff, one of Alexandroff's lieutenants. And the blood feud has continued unabated since that time until just prior to the last wholesale slaughter in the Sveti Kral Cathedral the number of assassinations had reached slightly under 40.

Having well accomplished its aim of instigating dissension in the Macedonian Party, Moscow, with its usual cynicism now turned to the opposing faction—the agrarians—and was apparently successful in forming an alliance with them. It is quite obvious, how-

ever, that the green international merely intended to use the communist aid for its own ends, having little in common with the Bolsheviks except the desire to overthrow the present régime in Bulgaria; and success by this peasant-communist group would undoubtedly lead to a further struggle between the two elements for mastery, with the victory beyond the power of human forecasting.

Be that as it may, the Zankov government has for some time past been calling to the attention of the powers the danger to European stability in the event of a communist uprising in Bulgaria. Should the Bolsheviks obtain a foothold in Bulgaria, it is claimed that operations could then be begun against Rumania, Yugoslavia, and Greece, with good chances of success. Thus the Bessarabian question would be easy of solution for Moscow; and, with the fall of Rumania, Poland would have little opportunity to withstand communist propaganda. This would leave the avenue of approach to Western Europe entirely free, according to Bulgaria, and it is to the interest of the powers to prevent such a contingency. The army allowed Bulgaria by the treaty of Neuilly is entirely too small for the exigencies of such a situation, claimed Bulgaria, and it was therefore requested that a temporary increase be permitted. But representatives of foreign governments in that country have continually discounted the agitation and resultant individual assassinations as being of an internal rather than a communist nature, and it was only with the bombing of the Sveti Kral Cathedral, in which about 200 were killed and 400 wounded, that the seriousness of the trouble has been recognized. That this outrage was of a political character is beyond cavil. In fact, it appears that the assassination of an official of sufficient importance to bring about the attendance of the cabinet members and other prominent officials was all a part of a deep-laid scheme. This plot, Bulgarian officials claim, arose from Moscow sources, of which fact they claim to have submitted indisputable evidence to the Council of Ambassadors. Whether or not this is the case, at least it is a fact that, realizing the necessity of pacifying the country, the Council of Ambassadors authorized the addition of 10,000 volunteers to the Bulgarian Army until the crisis passes.

According to recent press dispatches, fighting between Government and anti-Government forces continues heavy. The worst feature of the struggle is that there is no prospect of amelioration. Feeling has reached such a pitch between the factions that no quarter is expected or received. The agrarians have numbers on their side—about 80 per cent of the population—while the Zankov forces have the army and the police. There is no possibility of doubt that the Government could easily crush the present revolt

except for the arms and munitions and even military leadership furnished by the communists. What the outcome will be with this factor in the problem is not clear.

CHINA

CHINESE MISSION ABROAD

May 1, 1925

A few days ago there arrived in England a Chinese mission in charge of General Hsu Shu Tseng, composed of a staff including lawyers, economists, politicians, engineers, and literary men, as well as a military staff.

This mission has been sent out at the expense of the Chinese Government to make a general investigation of all conditions in France, Great Britain, America, and Japan, as well as to make a general political and economic survey of the continents visited. The mission expects to be in Great Britain about four weeks, when it will depart for America.

The British Government has formally recognized this mission and the board of trade, foreign office, army and navy have arranged for visits to all their various centers of interest.

General Hsu was a member of the general staff in China during the World War, and he wears the second order of merit, giving him a rank equivalent to that of marquess. He is an enthusiastic supporter of the present President of China and he has the reputation among his followers of being a great warrior. One of the Chinese secretaries of the legation here said that he was very cold-blooded and merciless and had killed a great many people.

The mission has received very little notice in the press, but it is being carefully looked after by the Government. General Hsu is to attend a dinner given by the press on May 7.

DENMARK

BALTIC CRUISE OF DANISH SQUADRON

A so-called Baltic squadron (Østersø-Eskedren) is to be formed under the command of Captain (Kommandør) G. C. Andrup, and will consist of the following ships:

(a) Cruiser *Niels Iuel*, 3,900 tons; armament, ten 15-centimeter guns and two torpedo tubes.

(b) Training cruiser *Hejmdal*, 1,300 tons, carrying two 12-centimeter guns, four 36-millimeter guns, and one torpedo tube.

(c) Training cruiser *Gejser* of the same size and armament as *Hejmdal*.

(d) Submarine flotilla consisting of three submarines, each of 300 tons above water, five torpedo tubes.

(e) Torpedo-boat division consisting of three torpedo boats each of 200 tons and four torpedo tubes.

(f) One mine layer.

It is intended that the squadron shall visit Helsingfors during the days from June 26 to July 1, Reval from July 1 until July 3, and Riga from July 3 until the 5th of that month.

In connection with the visit of the fleet, Mr. Eric Valeur, chief of the Danish Foreign Office's trade department, will be in Helsingfors, Reval, and Riga at the time of the naval visit, in order to study trade conditions between Denmark and the countries in question. It is also contemplated to exhibit the so-called "Denmark film," a moving picture of Danish life in town and country, of agricultural, industrial, and commercial enterprises.

FINLAND

PROPOSED FINNISH NAVAL BUDGET VETOED

April, 1925

The naval building program which was presented to the Finnish Parliament in the spring of 1924 has been vetoed by the Government owing to the heavy appropriations for other military purposes. It is understood that the program will be presented again during the present session, with a few minor alterations, principally relative to the period of construction.

The plan originally presented comprised the construction of the following vessels for coast defense:

- 3 gunboats.
- 2 destroyers.
- 6 submarines.
- 30 motor torpedo boats.
- 1 training ship.
- 1 aircraft carrier.
- 2 mine sweepers and mine-laying devices.

The total amount demanded was 520,000,000 Finnish marks, or 65,000,000 annually for the period of eight years.

FRANCE

AIRCRAFT CARRIER "BEARN"

May, 1925

The dockyard at La Seyne is now engaged in constructing the aircraft carrier *Bearn*. The history of the *Bearn* is as follows: Designed about 1910 as a battleship, one of a class of four ships; keel laid at La Seyne in 1912, but the completion retarded by the World War, at the start of which she was still on the ways. In 1920 construction work on the *Bearn* having ceased some time previous by order of the French Admiralty, it was decided to convert the *Bearn* into an aircraft carrier.

The vessel is approximately 175 meters long and of about 24,000 tons displacement. The original type of machinery is being retained, although the engines now actually installed were constructed for one of her sister ships. Thus the carrier is engineered just as though she were a battleship, four screws, Parson turbines, generating about 25,000 shaft horsepower, 23 knots. As redesigned, the top or flying-off deck will be free from obstructions, with the exception of a single mast on the port side amidships. Smoke-pipe gases will be let out on one side or over the stern, and provision is being made for both methods. The ship will have two rudders, one on each quarter. The bridge will be about one-third the length from the bow and is being arranged as an elevator capable of being housed, so that the top thereof may be flush with the flying-off deck when required. There will be three elevators for handling planes. A collapsible windbreak consisting of a wooden wall some 3 meters high will be provided on each bow to assist in flying off.

As originally designed, the *Bearn* was to have carried three four-gun center-line turrets. These turrets will not be installed, and no definite data as to the present armament can be obtained other than that about 10 antiaircraft guns, some of them 75's, will be included.

The completion of the *Bearn* has been retarded by the shortage of labor existing at La Seyne dockyard. According to present indications she will be commissioned in May, 1926.

FRANCE

NAVAL NOTES

April, 1925

The following appeared in the *Messaggero* of April 13:

It is announced that a French squadron coming from Toulon will visit Naples in the beginning of June. In this squadron there will be the largest units in

the French fleet, the dreadnaughts *Paris*, *Bretagne*, and *Provence*, and several light cruisers.

Our fleet at the end of a period of target practice will leave the waters of Gaeta and will meet the French squadron in the Gulf of Naples. The minister of marine and representatives of the Italian Government will be present.

The 1,100-ton submarine *Dauphin* was launched at Toulon April 14, 1925.

The submarine *Narval* (1,100 tons displacement) was launched at Cherbourg May 9, 1925.

The submarine *Ondine* (600 tons displacement) was launched at Le Havre May 8, 1925.

GERMANY

THE BECKER ENGINE

After many years of patient work the German engineer, Bernhard Becker, of Nohra, near Weimar, has constructed a steam boiler which represents an absolutely new invention in the sphere of heat technic. This boiler is much smaller than the ones that have been made up to the present and consists of a system of pipes of about $\frac{1}{200}$ of the cubic contents of a normal steam boiler. It requires a very small chimney and no special boiler house, whereas it has the same efficiency as a steam boiler 200 times its size. The novel element in this boiler is not only its small dimensions, but the absence of a water boiler, and the fact that sprayed water is forced into the tubes and reduced to steam at the moment it enters.

The test boiler is heated with oil, but it will soon be adapted for any other sort of fuel; its fuel consumption is less than that of an oil motor. The boiler operates and adapts itself to any given pressure automatically. The boiler will be constructed for a pressure of over 150 atmospheres, and experts expect it to surpass all present anticipations.

The inventor has permitted a number of correspondents to visit his workshop at Nohra. Three-quarters of a minute after the boiler had been heated the water pump began to operate. A few seconds later the manometer marked a slight pressure, which rose to 20 atmospheres in the course of four minutes. The 15-horsepower steam engine was immediately stopped, but in spite of this sudden diminution of steam no back movement of the manometer was apparent. According to the explanations given by the engineer in charge, this little boiler produces hourly not less than 300 kilograms of steam.

It is interesting to note that not a bit of scale incrustation is to be seen either in the pipes or in the boiler, nor is there any emery deposit. Instead of that a very fine, threadlike substance is to be noticed, which feels like silk to the touch. It would therefore seem that the steam produced in this manner has a peculiar chemical composition. We may safely infer that there is no foundation for the opinion of certain experts as to the danger of incrustation for this special boiler—it having been pointed out that the smallest quantity of incrustation would be sufficient to cause the lower pipes to burn through.

The manufacture of the new boilers is soon to be begun in Nohra. It is hoped that they will prove particularly useful in the construction of automobiles, and a special machine is being planned for farming purposes, which is expected to surpass all other machines that previously have been in use. It would seem that this invention points to the necessity of revising our whole theory of heat science. Becker has received letters from all parts of the world, which shows the great interest his invention has aroused.

GERMANY

A VISIT TO MASCHINENFABRIK, AUGSBURG-NURNBERN, A. G.

April 1, 1925

This company had in operation an experimental two-cycle, double-acting, single-cylinder engine of 1,100 B. H. P., operating at 100 revolutions per minute, cylinder diameter 32 inches, stroke 42 inches. This cylinder was fitted for both air and solid injection, but up to the present time a solid injection had not been tested. Apparently the primary object of this experiment is to develop the use of solid injection for Diesel engine cylinders of large diameters.

A discussion was entered into as to the type of engine which they would propose to use for cruisers or airplane carriers. They stated that their preference would be for the use of engines of approximately 6,000 horsepower of the four-cycle, single-acting type, and to use such number as necessary, gearing them to the propeller shaft.

The practice of this company is to use forged piston heads.

Their licensee in the United States is Hooven, Owens & Rentschler. Mr. Greger, the representative of this company, was at their works in Augsburg in connection with the design of the double-acting engines which they are to build for the Shipping Board.

In a discussion of the use of the Foethinger hydraulic clutch, their engineer stated that the installations which they had made using this clutch operated very well. They stated, however, that for a

reversal they preferred to reverse the engine rather than incorporate the reversing feature in the hydraulic clutch. They also stated that up to the present time the only success which they had had with the gearing of Diesel engines for ship propulsion had either been with the hydraulic clutch or double-quill drive and that under the present state of development they would not recommend the direct gearing of the Diesel engine to the propeller shaft.

The practice of this company is to use cylinder liners of harder material than the piston rings, the liner being about as hard as could be properly machined.

In a discussion of the use of solid injection, they stated that success for complete combustion depends both on the size of the cylinder and the viscosity of the oil. They state that they would not want to use solid injection with oil of greater viscosity than that corresponding to about 20° B.

In the erection of their engine they use tie-rods to the bedplates, which are set up so as to put the housing under compression, so that under no condition of operating stresses it would be possible to put the housing under tension.

For powers up to 2,000 they recommend the use of four-cycle, single-acting engines and for engines above this power the use of two-cycle, double-acting, except as noted above for cruisers or aircraft carriers. They do not recommend the use of a two-cycle, single-acting engine for any purpose.

GERMANY

THE ROSENBAUM GYRORECTOR

On April 30 I went to Staacken on the outskirts of Berlin (the flying field of the Deutsche Aero Lloyd) and made a flight in one of their passenger planes to witness the working of the Rosenbaum gyrorector which was installed in that plane.

The demonstration was entirely satisfactory from my point of view, and the instrument did everything that was claimed for it by the representative of the inventor who was with me.

The motor generator part of this instrument is secured to one of the vertical struts of the wheel framework, and the indicator was installed on a board in front of the pilot. The dial of the gyrorector, at least the face of the gyrorector, had been modified so that a circular dial is now used as the indicator instead of only a sector, as shown on the illustrations forwarded in previous reports. In this circular dial the horizontal line is shown in addition to the pendu-

lum, segment, and arrow pointer. The instrument indicates better now than it did before the angle made by the plane with the horizon. The pilot told me that he was very much pleased with the instrument. I also had a conversation with one of the directors of the Deutsche Aero Lloyd, and he told me that their trials with the instrument had been very satisfactory, and that they had ordered two or three more to be installed on some of their planes which will be engaged in night flying this summer between Germany and Scandinavian ports. He promised to let me have a written report of their experiences, but undoubtedly some time will elapse before this report is received. He said that the principal thing desired was an instrument that could be considered absolutely reliable, as the indications with the instrument were generally completely at variance with what the pilot believed to be the actual position of the plane, and that therefore they did not always feel certain whether to place entire or absolute reliance on the indications of the instrument. Unless such an instrument is absolutely reliable it might prove more of a danger than a help.

In addition to the German Aero Lloyd, I have been told that two of these instruments are being tried out by the Dutch Navy, and I have written to The Hague to endeavor to get reports from that source.

GERMANY

SCIENTIFIC EXPEDITION

The hydrographic survey ship *Meteor* of the German Navy left Germany on Wednesday, April 15, under the command of Commander Spizz, for a two years' scientific expedition in southern Atlantic waters. After an interruption of a number of years, the German Navy is thus resuming the scientific research work which was carried on so successfully by the former Imperial Navy.

The present expedition has been under preparation for several years and the program of work which has been laid out is the result of close cooperation between the Navy Department and various German scientific societies and scientific institutes. The general plan of the expedition was arranged by Professor Doctor Merz, director of the Berlin Institute of Oceanography, who is also scientific director of the expedition.

The *Meteor* is to make a systematic and intensive study of the southern Atlantic, the general outlines of the oceanography being already known. Besides the oceanography, a thorough study will be made of the Atlantic currents in the region from 20° north latitude to the ice regions of the Antarctic. For this work it is necessary

to study the fine differences between salt contents and temperature, and based on this foundation, to calculate the density and pressure of the sea water, not only of the surface current but in the depths.

In close connection with these hydrographic-physical questions is the biologic study of the breathing gases and the most important nutrients in sea water, as well as the oxygen and hydrogen contents, from the chemical point of view. The geologic study of the water from the ocean bottom obtained in soundings will throw light on the chemical and biologic nature of the bottom sediment, while the meteorological study of the higher air strata will furnish information regarding the air currents over the Atlantic which will be of immense value to maritime and aeronautical navigation on the Atlantic.

As commensurate with the extensive work planned, and the necessity of the results of the research being made immediately available in a scientific way, a large staff of scientific experts accompanied the expedition. The ship is equipped with the most modern scientific research instruments.

As already reported, the fathometer sonic sounding device, recently purchased by the German Navy from the Submarine Signal Corporation, of Boston, has been installed on the *Meteor*.

GERMANY

A DISCUSSION OF TWO RECENT BOOKS ON THE SUBMARINE WARFARE

(From the German press)

Vice Admiral Michelsen, commander-in-chief of the submarines during the war, has just published a book which he describes as a popular account of the submarine operations during the World War. (The Submarine Warfare, 1914-1918). The author has combined the most thrilling and absorbing descriptions of individual engagements with keen observations of a political and tactical nature. The book is illustrated by 21 drawings by the naval artist, Claus Bergen, who accompanied the *U-53* (Captain Rose) on one of its undertakings. The work could also be called "The Book of Lost Opportunities."

One hundred and forty-six different orders and instructions were issued during the course of the "unrestricted submarine war," each imposing greater restrictions on the commanders of the submarine forces. In the English Channel, a submarine approached 41 different vessels without being able to attack any one of them owing to the political situation, it being naturally impossible to ascertain whether

or not an American citizen was on board. The commander of the submarine that sank the French steamer *Sussex* was punished because Americans were on board. Professional naval circles will be especially interested in the chapter regarding the antisubmarine defense of the English and Americans. When one reads with what gigantic measures the Americans laid 100,000 mines between Norway and the Shetland Islands and how the whole tremendous apparatus of American industry and shipbuilding was placed in the service of the antisubmarine defense, then in reading Admiral Michelsen's book one must recognize with a feeling of sadness what sins of omission along this line were committed by certain German administrative divisions on land.

The book is divided into nine divisions or parts, as follows:

- (1) The submarine question prior to the war.
- (2) The submarine war and foreign politics.
- (3) The military side of the submarine war.
 - (a) The restricted submarine warfare.
 - (b) Submarine warfare according to the prize rules.
 - (c) The unrestricted submarine warfare.
- (4) The antisubmarine defense.
 - (a) Water bombs and bomb throwers.
 - (b) Hydrophones.
 - (c) Aircraft.
 - (d) Decoy ships.
 - (e) Surface craft.
 - (f) Submarines.
 - (g) Mines and nets.
 - (h) Armored merchant ships.
 - (i) Sundry other defensive measures.
 - (j) Convoys.
 - (k) Shipbuilding.
- (5) The military methods of the submarines.
- (6) Material and personnel.
 - (a) The supply of submarines and their construction.
 - (b) Personnel and training.
 - (c) Health of submarine personnel.
- (7) The effects of the submarine warfare.
 - (a) Insurance premiums.
 - (b) Freight rates.
 - (c) Ship prices.
- (8) Two important submarine questions.
 - (a) Was the submarine warfare inhuman and cruel?
 - (b) Would America have entered the war if the unrestricted submarine warfare had not been declared?
- (9) Failure.

There are six appendices as follows:

- (a) List of the submarines ordered.
- (b) Number of the front boats on the 10th of each month.
- (c) Number of submarines commissioned and lost during each month of the war.

- (d) Complete list of submarine losses, giving name of commander, place, and cause.
- (e) Submarine successes.
- (f) List of tonnage sunk.

In commenting on the northern barrage, Admiral Michelsen writes as follows:

The timely invention of an American antenna mine reduced the requisite number of mines to 100,000 instead of 400,000, as originally calculated. Mere contact of the anchor chain or connecting cable with the floating mechanism of the mine was sufficient to detonate the latter—a process that most always failed of its full effect. Nevertheless, it was lucky that this invention was made, as it insured the execution of the extensive plan, the fact being overlooked, however, that new ideas transferred to the “front” from the testing station are far from being ready for “front” service (4 to 19 per cent of these mines detonated while being laid).

In the mine-sweeping operations immediately after the war, it was found that only 43 per cent of the mines were in position (of the flat ones, there were only 28 per cent) and that the mines detonated spontaneously, as it were, from unknown reasons. Our submarines, which often passed this barrage during the war (1918) in a concert of unaccountable detonations, were already sufficiently acquainted even at that time with this characteristic of the American mines. It will also be quite clear to the reader that this barrage, which only represented a very incomplete blockade of the northern exit of the North Sea, could only be of very little effect owing to this loss. The Americans claim the loss of from 6 to 8 of our submarines through this blockade, but our reports only show from 2 to 4, and even then these boats must have been unusually unfortunate. In point of fact, it can be stated that the blockade was much more dangerous for the enemy mine-layers and sweepers than for our submarines, a fact to be seen from the enemy list of losses, and one can very readily understand the aversion of the English Admiralty and fleet toward this typical American undertaking.

In discussing the submarine warfare, he writes:

Whether in spite of all these urgent reasons, the chosen time was the right one, and especially whether it was not too premature, is discussed at length later on. However, it should be mentioned here that the decision to begin operations in February, 1915, must be called daring at the least, considering the efficiency of the individual submarines. In spite of extensive peace maneuvers and the important military experiences which had been gained up to that point, one had actually no idea of the real seaworthiness and navigational performance demanded by the submarine commercial war, and whether the submarines were capable of fulfilling these requirements.

He then speaks of the sinking of a number of English cruisers (*Cressy*, *Hogue*, *Aboukir*, etc.), and states that “these operations furnished valuable information regarding the efficiency of our submarines and led to important technical improvements. But their importance ended there; they could not have any important effect on the course of the war. On the other hand, they were admirably fitted to obscure the necessity of engaging the High Seas Fleet as a whole, and at the same time gave the enemy a warning which was far from our interests.”

Their main importance lay in their valuable scouting and training trips, and especially in so far as they inspired the thought of the submarine commercial war. The scouting expeditions, however, were not especially successful; for instance, the trip of the *U-18* (Hennig) to Scapa was as of little service in discovering the whereabouts of the Grand Fleet as that of the *U-12* (Forstman) to the Downs (sinking of the *Niger*) in establishing the fact that the Downs was a great concentration point for English commerce.

Equally unsuccessful were the operations of individual submarines against D unkirchen upon orders from the fleet. These operations were intended to relieve the right wing of our army from the enemy naval flanking fire (October 18 to November 2, 1914), a task that, considering its importance, would have justified the engagement of the entire fleet. That the submarines accomplished nothing here was due to their deficient numbers, and, in a further sense, to the entire lack of any organic cooperation between army and navy.

No submarine took part in repulsing the English attack on our outposts in Helgoland Bight (August 27, 1914), although Hurd states that the English cruisers claimed to have been attacked four times by submarines and the *Lowestoft* once. (Submarine nervousness.)

The submarine losses at this period, which immediately preceded the real submarine war, were naturally slight, as there was no effective enemy anti-submarine defense. When losses did occur, they merely represented the natural toll to be paid by a new weapon, still untrained for the difficult military tasks, and were nearly all due to sins of omission in a navigational and technical sense.

In discussing the submarine cruiser type commissioned in the autumn of 1917, Admiral Michelsen writes:

That in spite of all the alertness of the commanders and their undeniable ability, the trips of the submarine cruisers of this type can not be considered rational in the sense of the submarine warfare inasmuch as during the three months' service (to which must be counted the time for an extensive overhauling of the cruiser) twice as much could have been accomplished in English waters with a smaller boat and one making less requirements in point of personnel and material.

On April 21, 1916, the *U-19* (Weissbach) dropped off the leader of the Irish Nationalists (Sir Roger Casement) in the Bay of Tralee on the west coast of Ireland; the steamer *Aud* (German steamer *Libau*), under the command of Lieutenant Spindler (N. R.), worked in conjunction with the submarine. Although both submarine and steamer fulfilled their allotted duties according to schedule, the undertaking failed, probably through treachery. The fact has since been established that the English Government received a warning "from abroad" (ambassador in Washington) (Times, April 26) originating from a member of the Associated Press in Berlin. (NOTE.—Mr. Seymour Beach Conger, at present Berlin correspondent of the Philadelphia Ledger, was at that time Berlin correspondent of the Associated Press.) It is also extremely peculiar that Casement's arrest was known 48 hours before it really happened.

The new book by Lieutenant Spiess (Six Years' Submarine Service) forms an admirable addition to Admiral Michelsen's work. As watch officer on the *U-9*, Lieutenant Spiess participated with Weddigen in the sinking of the three English armored cruisers

Cressy, *Hogue*, and *Aboukir*, and finally assumed command of the boat himself. He gives a most delightful and spirited account of these trips and the subsequent commercial warfare as commander of the *U-19*. In this book criticism of many administrative posts is much sharper than in Admiral Michelsen's book. Many of Spiess's comrades lost their lives as a result of too much consideration being paid to a meticulous interpretation and execution of the operation orders, and causes the author to make some very sharp criticisms of the German political leaders at that time.

Lieutenant Spiess's account of the sinking of the three English cruisers is as follows:

We were most agreeably surprised when we came up on the morning of the memorable 22d of September. The weather had cleared off, the sky was brilliant, and the sea was very much calmer, although there was still a heavy swell on. We were stationed 22 miles west-northwest of Scheveningen. At 5.45 a. m. (central European time), shortly before dawn, the engines were thrown off and the motors immediately thrown on in order to recharge the batteries with the electric energy that had been consumed during the night. I kept the watch and observed the horizon, while Weddigen was taking exercise on deck with the chief engineer (Schön) and getting some fresh air. This damned white petroleum nuisance! On the very clear days it made the *U-9* visible at a long distance, and, furthermore, it made the watch very difficult. I therefore began to take a very slow zigzag course in order to be able to see better. There was nothing in sight outside of a few Dutch fishing cutters, which were plying their trade at a great distance. But all at once, over in the direction of the Maas Lightship, I spotted with my prismatic glass a tall, narrow mast coming up over the horizon! It looked like the mast of a war vessel. Was this perhaps the first enemy to be sighted in the war? As I sighted clouds of smoke alongside, all doubt left me. I ordered the gasoline motors shut off, and had Weddigen, who had just come below for his breakfast, see for himself. He immediately went into the conning tower and ordered us to dive. Shortly afterwards the sea closed over us.

U-9 kept submerged very well at periscope depth in spite of the high swell. We headed toward the smoke clouds and waited until the ship herself came over the horizon. I stood in the tower behind the commander and replaced him at the periscope from time to time. Our tension changed into happy excitement when Weddigen called out, "They are three small cruisers with four funnels." Could they be ours? But that was quite out of the question, and I requested permission to run quickly to the bow torpedo room in order to see that the reserve torpedoes were all in readiness for use. Just a few instructions and reminders to my trained torpedo crew and I hurried as quickly as possible back to the conning tower, where the commander slapped me joyfully on the shoulder, "Spiess, they are three English cruisers of the *Birmingham* class!" We looked at each other and I said, "Revenge for the *U-15*!" A short time previous the English had issued a report to the effect that the cruiser *Birmingham* had rammed the *U-15*, and our submarines had not yet evened up the score.

From now on we worked at fever heat. As we neared the enemy the periscope was only shown for a few seconds at a time in order not to betray our position through the feather. The great question was: Will we not come up on the surface when we fire, and what effect will the firing of the torpedo have

on our boat? The first sharp torpedo fired from a submerged boat had just been fired a short time previous by the *U-21* against H. M. S. *Pathfinder*. Although the torpedo was fired at a range of 1,200 meters, it was said that the shock in the boat was very considerable, and it was generally believed that a close-up shot less than 500 meters would very likely damage the bow of the submarine and prevent the diving machinery from working.

Weddigen selected the middle one of the three cruisers for our attack and ordered the torpedo tubes to be made ready. I reported, "All tubes ready; which is to be fired?"

Answer: "First tube; bow shot."

I then unscrewed the safety cap of the electric firing button of the first tube and held my thumb close to it so that I could press it immediately upon orders. With the left hand I operated the lever of the machine that raised and lowered the periscope.

Shortly before the shot was fired the commander gave the order: "Immediately after firing dive 15 meters and do not come out! We are close up!"

At 7.20 came the order: "Periscope out. First tube ready!" Every nerve strained, we counted every second.

"First tube—fire! Periscope in!"

At the same moment I pressed the release with my right thumb and called through the speaking tube to the torpedo room. "First tube—fire!" and pulled in the periscope with the left hand. What happened then? As I fired I fully expected it to be the end of us, for even *I* had overestimated tremendously the effect of a torpedo detonation at close range. I looked mechanically at the depth manometer to see if we had not come to the surface, and instinctively held on to the periscope. As may be seen, I was still a raw beginner.

All at once we heard a distant thud followed by a loud crash. Was that the torpedo hit? Hurrahs went up from below, and we in the conning tower spontaneously joined in. We could see nothing, as we were at a depth of 15 meters and the periscope was in.

The entire thing took place, naturally, much more rapidly, as it was a close-up shot of about 500 meters and the detonation followed 31 seconds after the command to fire. It took this long for the torpedo to reach the target and the sound of the detonation to come back to us. As soon as we grasped the fact that our boat was intact and the depth gear was working, Weddigen let the boat rise to periscope depth in order to see what was happening on the cruiser. I only took a very hasty look through the periscope at this cruiser, which lay deep astern, its four funnels were blowing off huge clouds of white steam, its bow was a little out of the water, and lifeboats were being lowered. The cruiser (H. M. S. *Aboukir*), which stood at the top of the list in the English Admiralty, lay over on her side after a few minutes and disappeared into the waves, taking with her the greater part of her crew of about 900 men.

In the meantime I was busy in the bow torpedo room reloading the first tube, which was quickly finished. The quarters were in great confusion, as in the haste of the battle all the appointments of the deck officer's and commander's rooms had been thrown to the rear in the greatest disorder in order to make place for the loading of the reserve torpedoes. Meanwhile a portion of the crew upon orders of the officer in command of the diving machinery were engaged in running back and forth in order to keep the boat level through the weight of their bodies. The chief helmsman was personally engaged at the rear diving machinery (hand operation); he was assisted by the chief engineer, who occasionally relieved him on account of the former's exhaustion. The crew, in so far as they were not stationed at the torpedo tubes and machines,

in obedience to the orders "Everyone front," "Everyone astern," were chased through the boat in such a way that after about an hour they were all done up, especially as they all knew that they were running for their very lives.

As the bottom catch of the first tube ahead was closed down I once more hurried above and reported "First tube is loaded." Weddigen was already aiming at the second enemy. I had a hasty look through the periscope and saw our target standing still, lowering cutters, while flag signals were being sent out from the bridge. The English war flag waved from the gaff, the guns were swung out in fan shape, and the gun crew in white could be seen standing alongside. If we came up now we were lost.

I stepped back from the periscope and said to the commander, "Herr Kapitänleutnant, they are three small cruisers, they are armored cruisers. The ship has double citadels; I saw it quite distinctly." Weddigen did not believe it, but decided, however, to fire two torpedoes this time. This would make its destruction more sure in the event of its being an armored cruiser. The commander once more warned the diving crew not to let the ship come up and not to cut under in firing; and so at 7.55 a. m., just 35 minutes after the first hit, on his command I fired off the two bow tubes one right after the other.

"Periscope in." We dived to 15 meters and Weddigen at the same time gave orders to back, using one propeller. When, puzzled, I asked why he did this, I received the answer: "Otherwise we will ram her." At the same moment, we heard two detonations. Both torpedoes had hit! Range about 300 meters. By reversing one propeller, with our enormous swing we came free of the *Hogue*, our periscope almost scraping her sides.

Now came the turn of the third. The last torpedo was loaded in front, but we had not yet fired the two stern tubes. Naturally this success relieved the tension in the control room; then the chief helmsman asked through the tube, "Herr Kapitänleutnant, how much longer is it going to last?"; and the chief engineer reported, "We must stop soon; there isn't much more power in the batteries." This was true; we had been all night under water and at the moment of recharging, we were obliged to dive again. It had to be considered that about 800 amperes were necessary for throwing on the gasoline motors for the return journey.

But Weddigen stuck it out and maneuvered around to the last cruiser. By damning the English, who had incited Europe and then Japan against us, we in the conning tower tried to quell the unpleasant impression made on us by the sight of the wreckage with the men swimming about in the water, the overturned boats, and the ship débris on which the drowning men were hanging.

At 8.20 a. m. (exactly one hour after the first torpedo was fired) we fired our two stern torpedoes, one after the other. A long time passed without anything happening, and we said, already depressed, "Gone by." Then boomed the

first hit. The second torpedo had evidently missed, because the ship saw our torpedo coming from afar and threw on full power at the last moment. The torpedo fell wide about 100 meters.

We now shouted "Hurrah!" enthusiastically, as we were now unquestioned victors. This time we did not dive to 15 meters, but watched our victims through the periscope, which showed hardly any alteration in the situation.

Weddigen decided to fire our last torpedo at the disabled ship in order to insure its destruction. At 8.35 a. m. our last torpedo left the tube and planted on the side of the *Cressy*; first a tall black smoke cloud and then a gigantic white fountain. It was a good hit and brought life now into this tragic play. The giant, with her four funnels, fell slowly but surely to port, and we saw the mass of men like black ants climb first on her side and then on her huge smooth keel until they disappeared into the waves. A sad sight for a seaman.

Our task was now fulfilled, and we had to see to getting back home as soon as possible, for we had no more torpedoes, and the electric power was only sufficient for a short underwater trip. We therefore turned north out of the wreckage and about 20 minutes later came up to the surface. During this time Weddigen allowed a portion of the crew to watch the sinking of the last cruiser through the periscope.

At 8.50 in the morning no signs of the enemy were to be seen: the sea had closed over the three cruisers. In the distance we again sighted several Dutch fishing boats that were trying with full power to get out of the unhallowed spot. The weather was brilliantly clear, and the swell had greatly decreased. We threw on all four motors, and I again took the watch.

In describing operations against the Russians in the Baltic, Lieutenant Spiess writes:

The Russians, in keeping with their principle of secrecy, had not reported various naval bases and surveyed (reef) waters, and had also not included them in the general marine charts. However, they might have saved themselves the trouble in this instance as we had received absolute information of the secret Finnish naval maps from the Finnish pilots upon whose help the Russians naturally had to depend in making surveys and channel indications. But that was the extent of the navigational aid we received from Berlin. The navy department had never once seen to the issuance of sufficient maps for this district, even as in other ways we were totally unprepared for a war with Russia. I personally understood quite well why our naval charts of English coastal waters were so inadequate for military purposes (especially as regards sketches of the coast line), for how could our navy department ever imagine that we with our navy would ever carry on a naval war in English waters? But in the case of Russia they could have done better.

Therefore, in that district we had to depend on the English and Russian charts: the necessary German charts were only begun in 1915 after urgent demands from the "front." In navigating in this reef district according to Russian charts one got very nervous, for these people not only make use of letters which are quite incomprehensible to us but they also survey according to absolutely abnormal lineal and depth measurements. Added to this is the fact that underwater navigation in reefy channels filled with rocks and cliffs requires exactness of navigation to a maximum degree.

He describes another interesting incident:

In assembling on the German coast on March 7, 1918, before joining the convoy forces, a little sensation took place. We lay on the ground in order

to wait for darkness, and called to the *U-94* by means of the underwater sounding apparatus in order to make a signal to her. After a short time the *U-62* and then the *U-102* answered, then the *U-91*; in short, eight boats were lying close together on the ocean bottom. An unusual coincident.

GERMANY

NAVAL NOTES

May, 1925

Launching of the "Emden"

When the new small cruiser *Emden* was launched at the beginning of this year, entirely new methods were employed. It is usually customary to launch the ship on two tracks, but in this instance such a procedure was impossible owing to the fact that the *Emden's* keel was not tapered in the front part of the ship, and furthermore, the form of the ship was so slender throughout that the side tracks could not be taken far enough to the front.

It was finally decided to arrange a central cradle, 110 meters long and 12 meters wide. In this way the weight of the ship is borne by the center keel which is strong enough to bear the strain. In launching other large war ships, it has been customary to place reinforcements in the bottom of the ship in order to prevent distortions and bulgings, which added weight that could have been much better used for protective armor and armament. In the *Emden*, these reinforcements were not necessary.

At the sides of the central cradle which bore the main weight of the ship, light guide cradles were arranged at port and starboard so as to prevent the ship from keeling over on the side.

With this system of launching, it was especially necessary to devote particular attention to the stability after the stern was afloat. The calculations showed that it was sufficient, but in order to run no risks, 200 tons of water ballast were placed in the double bottom. To prevent the ship from sliding ahead of time after the cradles were attached, the cradles were fastened to the tracks by strong screws which were only released immediately before the actual launching. There was also a lever arrangement which was released at the very last moment by means of a crank.

Two bilge stocks were also left on until after the christening ceremony; sand sacks lay between these launching blocks, and were cut away after the launching. The sand, which was pressed tight together by the launching blocks, ran out very quickly so that the blocks could then be released and taken off. After all the anchoring devices had been released, the ship was set in movement on the ways by means of an hydraulic press, and the launching took place without difficulty.

Commissioning of the "Hessen"

(From the German Press)

The lineship *Hessen* was put into commission at the Wilhelms haven Navy Yard on January 6, 1925, with a small crew. She is the fourth lineship in the lineship division and will be stationed at Kiel.

We are delighted that it is at last possible to put the fourth lineship into commission, but it should not be forgotten that this class was not considered first-class even before the battle of Skagerak, one of this class (the *Pommern*) having been sunk by an enemy torpedo during the night march.

Proposed new airport at Emst

Efforts are on foot to construct a flying field and equip an airport at Emst, near Hagen, in Westphalia. The committee in charge is to arrange for the necessary terrain by purchase and exchange so that as soon as German aircraft is accorded the necessary liberty of action, this airport can be incorporated in the German net under the administration of the aeronautical department. In a recent official announcement, it was stated that the proposed airport would cost between 6,000,000 and 7,000,000 marks, but after comparison with the cost of other airports in Germany, it is felt that the above figures are inaccurate. The airport at Gelsenkirchen covers 400 morgen (morgen is about 25.5 acres) and this with the two hangars and a tribune cost 750,000 marks. The field at Wanne-Herne cost 800,000 marks but the necessary land (600 morgen) was merely leased. It is considered by experts that 120-150 morgen will be sufficient for the field at Emst and that 200,000-300,000 marks will be sufficient for construction of the necessary hangars and signal plants. The city of Karlsruhe is planning to equip an airport for commercial planes and is counting on an expenditure of 140,000 marks.

GREAT BRITAIN**NAVAL NOTES****May, 1925***Reported serious defects in H. M. S. "Furious"*

It was learned that H. M. S. *Furious*, which has been out on steaming trials preliminary to recommissioning, has returned to Devonport dockyard for some major changes which will require

eight or nine months to accomplish. The exact nature of the defects could not be ascertained, but it was gathered from the conversation of the informant that they had to do with the system of disposal of smoke-pipe gases.

Floating docks

The disposition of ex-German floating naval docks has not been clearly stated by the Admiralty heretofore. It has been previously reported that Devonport was agitating for a floating dock large enough for the *Hood*. Provision for necessary dredging was made in the estimates. In answer to a question in the House of Commons by the member from Devonport, the official answer was given that an ex-German floating dry dock was "at present moored at Portland, pending the completion of the berth selected for it at Devonport."

This dock can be identified as one of the three docks surrendered by the Germans, of which the largest has had two additional sections added to it by Armstrongs in order to let it take the *Hood*, *Nelson*, and *Rodney*. This dock is now completed, and it is announced will "shortly" be towed to Malta, where the existing floating dock (of British construction) is inadequate to take care of the increased naval forces in the Mediterranean. The old Malta dock is also inadequate for the bulged *Queen Elizabeth* class of battleships. It has been reported that the enlarged German floating dock earmarked for Malta may eventually go to Singapore.

Mr. Amery, in the House of Commons, June 27, 1923, announced officially that the Singapore project called for a graving dock and a floating dock in addition to the graving dock of 95-foot beam now there, which could not take bulged battleships.

The ex-German floating dock now promised to Devonport will presumably have to be enlarged, as was the German dock now going to Malta.

The third ex-German floating dock (for submarines) was sold to Cox & Danks, the ship breakers, who cut it up to make pontoons for use in their Scapa Flow salvage operations.

The approval of a proposed maximum-sized floating dock for the Australian Government (Walsh Island, Newcastle, N. S. W.) to cost £300,000 was published in the May, 1925, BULLETIN. The contract has not yet been let, so far as can be learned.

With the Southampton floating dock (Southern Railway Co.), the two ex-German docks, and the new Australian dock, there will be available, in all, four British floating docks able to take the largest warships.

ITALY

MEDITERRANEAN PROBLEMS AND INTERESTS

(From the Italian press)

The British naval maneuvers ended on March 20 with the same display of forces and in the same location as in 1924.

A year ago—i. e., on March 10, 1924—the British Atlantic fleet, after a short stop at Gibraltar reached the Bay of Pollenza, situated on the northeastern coast of Majorca, where it joined the Mediterranean fleet, which had left its usual base at Malta a few days before; 94 units were thus gathered, as follows: 15 dreadnaughts with 381 and 343 millimeter guns, 12 cruisers, and a very modern aircraft carrier (the *Argus*).

Between March 10 and March 15 maneuvers and practice took place, the problem being the research and attack of an enemy fleet operating between the northern coast of Africa and the Gulf of Lyons.

These were the first important naval maneuvers of the British Navy after the World War, and they took place a few months after the large and most powerful portion of the British fleet had been detailed to the Mediterranean; i. e., in December, 1923.

Much comment was aroused in France and Italy; England officially explained that her concentration of forces and her maneuvers in the Mediterranean were a natural consequence of the fact that the German fleet being destroyed she had no interest in carrying out further activities in the North Sea and the Channel.

This year the same maneuvers have taken place in Balearic waters. This proves the importance that the western part of the Mediterranean has acquired in British naval policy and the Admiralty's particular interest in the Balearic Islands. This is quite justified, as they control the sea routes between northern Africa and the French ports, between the Straits of Gibraltar, Sicily, and Italian ports. It can serve as a base for a fleet cruising from Gibraltar to the East or from the East toward the Atlantic Ocean.

When England became a Mediterranean power by her possession of Gibraltar, she also occupied the Bay of Port Mahon in the Island of Minorca, which she turned into a good naval base. She kept it for 70 years. In 1783 France and Spain succeeded in taking it back from her. England afterwards took possession of Malta, but this did not entirely replace Port Mahon. In the nineteenth century England succeeded in improving her position in the eastern Mediterranean by occupying Cyprus, Alexandria, and Suez Canal. This, however, did not help her in the western Mediterranean, where the necessities of defense were increasing on account of the develop-

ment of France's activities on the North African coasts and the creation of the new Italian Navy.

Therefore the British Admiralty always bore the Balearic Islands in mind, especially in moments of tension with France; at the time of the Fascioda incident a British naval squadron appeared in Balearic waters with a view to occupying Port Mahon, which would have served as a base for cutting off France from her colonies and also as a valuable point d'appui midway between Gibraltar and Malta.

After the World War the importance of the western Mediterranean in the general naval situation has greatly increased.

In the eastern Mediterranean no displacement can be foreseen in the near future, there being no Russian or Turkish fleet and Greece being busy with her national troubles.

France and Italy gravitate toward the western Mediterranean. These two powers were strengthened by the war and must expand. Therefore they follow an active colonial policy, and their sea routes run across the Mediterranean. This is why England, after detailing large forces to her base at Malta, is concentrating her attention on the Balearic Islands.

France, however, is not active; she is carrying out a vast program of naval construction as a consequence of the new Mediterranean situation. The French are now considering a naval program which establishes the composition of the French fleet in 1936, when the treaty of Washington expires. It will be as follows:

| | Tons |
|--------------------------|---------|
| Line ----- | 175,000 |
| Aircraft carriers----- | 60,000 |
| Light surface craft----- | 360,000 |
| Subsurface craft----- | 96,000 |

An active Mediterranean policy is as necessary for us as it is for France; in fact, more so, as Italy is exclusively a Mediterranean power. Italy's accord with Yugoslavia was made with a view to settling the Adriatic question, thus enabling Italy to turn her attention to the rest of her coasts.

Signor Mussolini, in February, 1924, before the commission of admirals, expressed his intention of doing all that was possible to make the navy efficient and ready to face all events.

The Italian Premier's speech was interpreted in France as an argument in favor of the proposed extensive naval program that was being discussed at the time.

However, by carrying out this program France might incur the responsibility of starting a new competition in naval armaments, as it is evident that Italy can not remain inactive without prejudice to her safety and interests. The treaty of Washington in 1921 not

only limited the tonnage of ships, but established the principle that the Italian and French navies should have an equal tonnage of surface craft.

These decisions were the result of a bitter contest on the part of our delegates and were applauded as a great success, inasmuch as the principle of equality had the moral value of recognizing Italy's new position after the war, and at the same time it created a situation by which our interests in the Mediterranean were protected, while dangerous competition in naval armaments was prevented.

This was a success both for Italy and for the cause of peace. For this reason it is Italy's duty to remain literally faithful to the words and the spirit of the treaty of Washington. But it is necessary that others should do the same.

ITALY

BAGNULO MOTORS

The Bagnulo heavy oil internal-combustion engines are intended primarily for such uses as driving electric generators, pumps, auto-buses, and motor boats. The largest engine of this type built thus far is 40 horsepower. The authorities of the Bagnulo Co. state that they are now working on an engine to develop 60 horsepower, which will be the largest that they contemplate building.

The following is quoted from a report of the trial performance of a 40-horsepower Bagnulo engine installed in a Spa autobus, as compared with a 10-horsepower Fiat automobile. This report also describes in general terms the peculiar features of the Bagnulo engine:

Interest in the adaptation of heavy oil internal-combustion motors to automotive chassis has been aroused in Naples, Italy, recently by the arrival of a "Spa" 3-ton truck chassis with an autobus body, equipped with 40-horsepower "Bagnulo" heavy oil motor.

The autobus made the trip from Rome to Naples, a distance of 155 miles, at a fuel cost of 50 lire (slightly over \$2 at present exchange rates). The average speed maintained was 14 miles per hour, but the existence of bad stretches in the road necessitated a speed of 20 to 25 miles per hour on smooth, level stretches.

The smallest Italian car in general use, a 10-horsepower "Fiat," uses about 36 liters of gasoline, at a cost of 98 lire (slightly over \$4), to make the same run. The trip in this car usually takes seven hours, and a speed of 30 miles per hour must be maintained over the good road to permit of its accomplishment in that time.

Peculiar feature of the "Bagnulo" motor

The outstanding features of the "Bagnulo" motor are, of course, in the apparatus employed to convert the oil to a combustible gas. This apparatus is known as injector-carburetor, which consists principally in two parts, the

injector and the chamber of carburization. Oil is introduced into the combustion chamber drop by drop, instead of in the form of a spray, as is said to be the practice in other heavy oil engines.

The liquid drops of oil fall into the combustion chamber, which is originally heated by external means and thereafter by the heat generated by the exhaust passing into close contact with the chamber of combustion. Here, on account of the heat, the drops are vaporized, but do not burn, because of the lack of air in the chamber, which contains the inert gases of the previous combustion and the rich vapor of the new oil.

Combustion takes place at the end of the compression stroke of the motor, because by then the quantity of air necessary to make a perfect combustible vapor has been introduced. The air begins to be introduced during the last third of the compression stroke, and to become mixed with the vapor which has already been diffused throughout the combustion chamber. A gradual combustion begins as the mixture becomes rich enough in air to support it, and the intensity of the combustion increases as the compression produced by the upstroke of the piston and the quantity of the air increase. The maximum combustion occurs, therefore, as the piston reaches the top of its stroke. All the heat calories which the oil and air mixture is able to produce are concentrated at this point.

ITALY

NAVAL NOTES

May 1, 1925

On April 25, the new Italian destroyer *Quintino Sella* will be launched from the Pattison yards at Naples in the presence of the Minister of Marine. This is our first large destroyer and also the first ship built entirely under the administration of Admiral Thaon de Revel, Minister of Marine. Her displacement is 1,200 tons, speed 36 knots, and she carries four 4½-inch guns.

NEW SQUADRONS OF DESTROYERS

The recent war has shown that it is advisable to adopt standard types of light craft, i. e., 10,000-ton cruisers, scout cruisers, and destroyers with a wide radius of action. In war time divisions and squadrons of destroyers will defend our sea routes and harass the enemy's. Italy, owing to lack of funds, can not build many cruisers or scout cruisers.

The destroyers at present possessed by our navy do not entirely respond to the task of this type in modern warfare. The *Sella* type is larger, better armed, is more rapid, and has a wider radius of action. Pattison is at present building three more destroyers of the same type: *Ricasoli*, *Crispi*, and *Nicotera*, having the following characteristics: displacement 1300-tons, speed 36 knots, four double 4½-inch guns, and four torpedo tubes of a new model.

Other destroyers are being built as follows:

Four at Sestri Ponente and Fiume: *Sauro*, *Battisti*, *Nullo* and *Manin*; displacement, 1,400 tons; 6 torpedo tubes; other characteristics as above.

Four will shortly be laid down at Odero's (Genoa): *Turbine*, *Aquilone*, *Nembo* and *Euro*; displacement, 1,500 tons.

Four building at Ansaldo's (Genoa: *Borea*, *Zeffiro*, *Espero*, and *Ostro*.

These destroyers will all be ready within two years. Several out-of-date ones will then be put out of commission.

OTHER TYPES

Italy is also building two 10,000-ton cruisers, the *Trento* and *Trieste*. The following are additional data on these light cruisers now building at the "Cantiere Navale Fratelli Orlando" at Leghorn and at the "Stabilimento Tecnico Triestino" at Trieste.

| | |
|----------------------------------|------|
| | Feet |
| Height of keel to main deck..... | 39.4 |
| Keel to normal water line..... | 18.9 |

Two planes will be carried on board.

Three light cruisers, the *Tigre*, *Leone*, and *Pantera*, have started for a long cruise in northern European waters.

Two new mine layers have recently been launched, the *Fasana* and *Pelagosa*, two more are under construction, the *Durazzo* and *Buccari*. After these several other mine-layers will be laid down—*Milazzo*, *Dardanelli*, *Ostia*, *Anzio*, *Lepanto*, and *Legnaho*.

Submarines under construction—a 1,300-ton type with one 4½-inch gun and six torpedo tubes. There will be four of these, as follows: *Balilla*, *Sciesa*, *Tosti*, and *Millelire*.

Seven 800-ton submarines as follows: *Pisani*, *Bausan*, *Tito Speri*, *Masaniello*, *Pier Capponi*, *Giovanni Da Procida*, and *De Geneys*.

The present Italian naval program comprises four large submarine-chasers (MAS) and the establishment of certain naval bases in Sardinia and Sicily.

MANEUVERS

On April 20 the Italian dreadnoughts *Cavour*, *Duilio*, and *Doria* left Spezia for Rapallo with two squadrons of destroyers. These warships will cruise along the Italian Riviera, and on May 1 they will proceed to Gaeta to meet the dreadnoughts *Dante* and *Giulio Cesare*, together with two squadrons of destroyers coming from Taranto.

The fleet will stay there for two months. There will be combined maneuvers and general target practice (competition for the "King's Cup").

The problem for the summer maneuvers is being studied by a commission of the general staff presided by Admiral Ducci. It is rumored that they will take place between Sicily and Sardinia and will be combined with the army and air service.

Flight from Rome to Sydney and Return

On April 21 Commander Francesco De Pinedo started on his attempt to fly from Rome to Sydney, Australia, and return. The proposed route is via Bagdad, Calcutta, Saigon, Hongkong, Shanghai, Tsingtau, Nagasaki, Tokio, Takan, Manila, Cebu, Port Albany, Melbourne, Sydney, Biasbaine, Port Kennedy, Delhi, Singapore, Calcutta, and then back to Rome. The total distance to be covered is about 34,450 miles, which it is planned will be divided into 73 laps.

Commander De Pinedo is accompanied by one mechanic. The plane being used is an *S-16* ter flying boat equipped with a Lorraine-Dietrich 400-horsepower engine. The seaplane was built by the Savoia (SLAI) Co., and the engine by the Isotta Fraschini Co. Commander De Pinedo expects to cover the entire distance with the one engine.

The Italian commissariat of aviation has allotted the sum of 700,000 lire (in addition to the cost of the seaplane complete) for this project.

Visit of Italian Men-of-War to Greece

On May 6 a cruiser and a destroyer division of the Italian Navy will sail from Taranto for a visit to Greek ports. These divisions will consist of the following ships:

Cruisers.—*Ancona, Bari, and Rossarol.*

Destroyers.—*Audace, Solferino, Cosenz, and San Martino.*

The cruiser *Quarto* will join these divisions during the cruise.

The itinerary of the cruise is as follows:

May 8.—All ships (less the *Quarto*) at Navarrino participate in the ceremonies commemorating the death (100 years ago) of Santorre di Santarosa, the Italian patriot and friend of the Greek people.

May 10.—The *Ancona, Bari, and Quarto* at Falero. Representatives will participate in the ceremonies at Athens in honor of the hero Santorre di Santarosa.

May 10.—The *Rossarol* and the destroyers at Corfu receive the ashes of Admiral Graziani, who was one of the presidents of the Republic of Venice. Depart the same day. The *Rossarol* proceed-

ing with the ashes of Admiral Graziani to Venice and the destroyers returning to their home bases.

May 14.—The *Ancona*, *Bari*, and *Quarto* at Salonica for the unveiling of a monument to "The Italian Soldier." Immediately after this ceremony these ships will sail for their home ports.

The following persons will take passage on board the navy ships during this cruise: Gen. Petitti di Roreto, Senator Luigi Luigi, Hon. Alessandro Sardi, M. P., Professor Colombo (of the Royal School Vittorio Alfieri in Turin), Rear Admiral De Rossi di Santarosa and his two sons (representing the Santarosa family), and Col. Ernesto Graziani (representing the Graziani family).

At Navarrino the Italian minister to Greece (Commandator Brambilla) will embark on the *Bari* and will remain on board until the departure of that vessel from Greek waters.

JAPAN

VISIT TO KASUMIGAURA NAVAL AIR STATION

April, 1925

On arriving at Tsuchiura we were met by an official automobile, no officer, and driven to the air station. Enroute was passed a small village at which were seen about six or seven airplanes, apparently scrapped, as they were in a badly broken-up condition. Further on was seen, on the left of the shore of the lake, the seaplane station; turning to the right and driving up a slight grade directly away from the seaplane station, we next passed on our right side a group of about 20 one-story frame buildings. Before constructing these buildings it was apparent that considerable part of a hill had been cut away to provide a level foundation. Opposite these small buildings on the right side of the road were about six small stores; arriving at the top of the grade, the land airplane station was then in view. We dismounted at a one-story U-shaped building and were there received by the admiral in command of the station, the second in command, and another officer. The admiral was very cordial, and a general conversation was engaged in for about half an hour, after which he excused himself, saying he had to appear at the opening of an archery school.

We then had a very nice luncheon, after which we proceeded in an official car, a two or three year old seven-passenger Hudson, to inspect the station with an officer as escort.

We first arrived at the land flying field and got out at three Bessenau hangars. In these hangars were located Mitsubishi 1924

model pursuit planes, supermarine type amphibians, and Vickers Viking amphibians. We were then driven to the center of the land flying field, where is located the main and permanent land-plane hangars and overhaul and test shops. This group consists of five permanent hangars, an engine overhaul and construction shop, woodworking and fabric-repair buildings, four engine test stand buildings, and two or three other buildings the purpose of which is not known, as we were not taken through them. In the hangars were seen Mitsubishi new model observation planes, Avros training airplanes, Mitsubishi old model observation planes, and one Mitsubishi 1924 model bombing plane. The engine overhaul and construction shop contained very complete and modern equipment and was extremely well laid out. In one large room were seen overhaul benches with racks, compartments for various parts of airplane engines, a well-equipped machine shop at one end containing several lathes of different sizes, several small machine grinders, and several other different kinds of power-driven machines. All these machines were of Japanese make. About 12 or 15 LeRhône engines were seen in this building. At the time of the inspection about 20 sailors were in the building receiving practical instruction in engine overhaul. Adjoining this building and separated from it by sliding doors were the following small shops: A foundry, a coppersmith shop, blacksmith shop, magneto and instrument repair shop, and a carburetor shop. The arrangement of these shops was excellent in that they were extremely handy and at the same time sufficiently separated by the large doors to cause no inconvenience in the engine overhaul room. We were then taken through the woodworking and fabric-repair building, which is about the same size as the engine overhaul building and contains a woodworking shop, fabric shop, dip and varnishing room, and a very modern varnishing and drying room. This latter was equipped with ventilating blowers with the suction arranged in the floor and controlled by a series of shutters in the floor. We then passed on to the engine-test stand buildings, which contain modern test stands and equipment.

Near the hangars were seen several portable engine starters mounted on Ford chassis. Between two of the hangars were seen a steel framework watchtower about 100 feet high. This group of buildings were so arranged that the four permanent hangars formed the sides of a quadrangle in which the other buildings were located. No gasoline storage tanks were seen other than several 100-gallon tanks mounted on Ford chassis and equipped with hand pumps.

We were then driven back to the edge of the flying field and proceeded around the edge toward the lighter-than-air installation. En route we passed the magazines and the machine-gun butts. Further

on we passed a group of buildings which, we were informed, were the experimental and laboratory buildings and which contained a small wind tunnel. This group consisted of about six permanent buildings of medium size, two of which were under construction. We then passed a group of buildings which, we were informed, was the lighter-than-air group. This group contained about five buildings, one of which was under construction and one of which was a two-story brick building which is probably used as a barracks. A short distance beyond the lighter-than-air group were seen a rather small building, the steel frames of which were being erected, and which we were informed was to be a hydrogen plant.

We then arrived at the dirigible hangar. This is a very large hangar and apparently is the Zeppelin hangar received from Germany. In this hangar were seen a number of enlisted men folding up a gas bag of an Astra dirigible, said to be *Astra No. 2*. The car for this Astra dirigible was equipped with magnetic compass and other instruments of French make and a small radiator room minus instruments. We were informed that this car carried 20 men. In the hangar were seen several hundred hydrogen flasks as well as four field hydrogen generating sets mounted on trucks. The hangar contained no storerooms or shops other than several small ones apparently constructed from airplane crates. A steel structure for housing a Zeppelin was located on tracks entering the hangar. About 100 yards from the hangar was a small steel structure mooring mast for nonrigid airships. This is an old type with a U-shaped top.

From the Zeppelin hangar we drove to the seaplane station, en route we passed a group of two-story buildings which, we were informed, were used for barracks and for classroom instruction purposes; also in this group was seen a large garage capable of holding about 50 cars.

The seaplane station consists at present of eight buildings. One permanent double seaplane hangar, four corrugated iron seaplane hangars, and three Bessenau canvas hangars. The steel framework for at least one more hangar was assembled on the ground. In the hangars were seen the following seaplanes:

- 13 Avros.
- 6 Yokosuka type.
- 7 Hansa Brandenburg type.
- 2 Vickers Viking amphibian.
- 3 Supermarine Seals.

The beach in front of the hangars was concrete. There are five concrete ramps, two of which have very recently been completed, and all of which are quite steep and have deep water alongside. A con-

crete pier about 150 feet long was seen and also in process of construction was a rescue-boat basin about 100 yards square. A steel frame watchtower is situated near the hangars, and is half built. There are no shops or storerooms at the seaplane station. It is probably the intention to erect three more corrugated-iron hangars to replace the three Bessenau type. We were also informed that in the near future engine and seaplane overhaul buildings similar to those at the land-plane station would be built. The only other equipment seen at the seaplane station were two large picket boats moored off the station and one speed boat hauled up on the beach undergoing repairs.

After being shown through the seaplane station we then asked to see the instruction classrooms. This request was not granted, and, it being indicated that the visit was over, the escorting officer got out of the car and we were driven to the railway station at Tsuchiura, arriving there at 2.30 p. m.

General comments and observations

All airplanes and seaplanes seen at Kasumigaura were of Japanese design, except the Avros, Vickers, Vikings, and Supermarine Seals.

The Vickers Vikings and the Supermarine Seals are the only types seen that were not manufactured in Japan.

In the 1924 model Mitsubishi-built biplane pursuit machine, the 1924 model Mitsubishi biplane observation, and the 1924 model Mitsubishi biplane, bombing and torpedo, the Japanese have planes of their own design and manufacture. The pursuit-type machines seen were equipped with the 300-horsepower Hispano Suiza engine and a fixed machine gun on the right side. This machine gun was a Siemens-Pickard (first part of name not certain), had no telescope sights, but a large ring sight in the rear and a front sight forward on the engine cover. The plane resembles our MB-3 pursuit and has about a 3° dihedral angle in both wings.

The Japanese now appear to be testing the Rohrbach and Dornier machines, recently imported, with the idea of finding a type superior to the F-5 boat.

The tests now being made with the Fairey pintails recently imported indicate that the Japanese Navy is trying to find an amphibian type suitable for deck landing.

The Yokosuka type of seaplane was said to be unsatisfactory, and that no more were to be built, but that endeavors were being made to design an improved type of this plane at Yokosuka (Nagaura).

When asked about the organization of the air companies at Kasumigaura, how many training squadrons, etc., we were informed that

all the planes and personnel were organized into one training squadron, and that the only purpose of the station was for training. According to the Japanese Navy Department, as previously reported, there are assigned to the four naval air stations a total of 11 heavier-than-air companies. Five and a half of these are attached to Kasumigaura, two and a half being training companies. This organization is believed to be a paper one only, toward which they are striving, but have not yet reached in either flyers or planes. According to this paper organization, Kasumigaura should have 60 planes for the training companies and 48 planes for the active companies, making a total of 108 planes, whereas at the time of this inspection there were only 82 planes.

The commanding officer of the Kasumigaura air station serves in two capacities. As commanding officer of the naval station and as commanding officer of the air training station. As commanding officer of the naval station he is under the command of commander in chief of Yokosuka naval station, and as commanding officer of the air training station he is directly responsible to the Emperor.

Practically all airplanes seen in the hangars were quite new, were in excellent condition, and gave the appearance of having been cared for by well-trained mechanics.

When this air station was visited about two and a half months ago there were about 157 aircraft on the station. This number included such types as Sopwith Cuckoo, Parnell Panther, Sparrow Hawk, Blackburn Swift, De Havilland, and Martinsyde. Unofficial and unreliable information recently obtained stated that in the latter part of February, 1925, about 200 old planes at Kasumigaura were either destroyed or sold to civilian air companies. Inasmuch as 75 planes have disappeared since about February 1, 1925, it seems established that the above report is correct to the extent that about 75 aircraft of the old foreign types mentioned above have been destroyed or otherwise disposed of.

The whole station is modern, up to date, and has the appearance of being efficient. All the enlisted men seen were neat and clean, smart in appearance: they never failed to salute, and went to their work in formation and on the double. The station with its present buildings is capable of holding about three times as many aircraft as are now on the station.

We were informed that deck space was marked off on the flying field for preliminary training in deck landing.

We were informed that all training planes were marked by R-(numeral) on the tail and that service planes were marked with the first letter of the air station to which assigned followed by a numeral. Thus *Y-212* would be a service plane attached to the

Yokosuka Naval Air Station. The only airplane seen at Kasumigaura which was not marked with an "R" was the one Mitsubishi bombing and torpedo plane, whose numeral was preceded by "Y."

No aircraft seen had radio set installed, but some planes had a place provided for radio sets, and it is indicated that trailing type antennae is used.

We were informed that in the near future an engine overhaul shop similar to the shop at the land airdrome would be erected at the seaplane station.

JAPAN

PRODUCTION OF MUNITIONS

Source: M. I. D.

CONTROL

Munitions are manufactured in Government arsenals and in private industrial plants. All private plants which receive munitions orders are so closely tied to the Government by dividend guarantees—preferential tariffs, Government subsidies, and Government contracts—that the entire munitions industry of Japan may be considered as under the direct control of the Government.

SOURCE OF ARMY MUNITIONS

It is estimated that army arsenals produce 95 per cent of the munitions used by the army, exclusive of aeronautical equipment. About 80 per cent of the aeronautical equipment of the army is produced in private plants which are dependent on Government support for existence. About 10 per cent of the army's aeronautical equipment is manufactured in army arsenals and about 10 per cent is imported. The imported equipment consists mostly of new types of airplanes, aircraft engines, radio and photographic equipment, and possibly bombing equipment.

SOURCE OF NAVY MUNITIONS

Capital ships.—Ten per cent of Japan's capital ships were built in England; 50 per cent were built by the Japanese navy, and 40 per cent by private dockyards in Japan.

Cruisers.—Twenty per cent of Japan's cruisers were built in foreign countries; 35 per cent were built by the Japanese navy yards, and 45 per cent by private dockyards in Japan.

Destroyers.—Less than 1 per cent of Japan's destroyers were built in foreign countries; of those built in Japan, about half were built in navy yards and half in private dockyards.

Submarines.—Four per cent of Japan's submarines were purchased abroad; 42 per cent were built in Japanese navy yards, and 54 per cent in private dockyards.

Other naval equipment.—Japan's navy yards produced about 95 per cent of all other naval equipment, including other types of auxiliary ships, but excluding aeronautical equipment. The figures for naval aeronautical equipment are approximately the same as those for army aeronautical equipment (par. 3).

PRINCIPAL ARMY ARSENALS

Tokyo arsenal.—This arsenal has manufactured in the past fuses, primers, and small-arms powder (Itabashi plant); rifle and machine-gun ammunition (Jujo plant); nitrocellulose, mercuric fulminate, ammonium picrate, and trinitroluol (Oji plant); nitroglycerine (Yono plant); and black powder (Meguro plant). Tokyo arsenal has also produced in the past small arms, machine guns, horse equipment, leather equipment, bombs, hand grenades, field artillery shells, shrapnel cases, shelter tents, and optical instruments. The arsenal was so badly damaged during the earthquake and fire of 1923 that the production of all these articles is believed to have been materially curtailed. It is probable that as soon as funds are available several of the branches of the Tokyo arsenal will be transferred elsewhere. It has been unofficially stated that the manufacture of explosives will be transferred to a new plant to be built near Hiroshima, and that the manufacture of horse equipment, leather equipment, and machine guns will be transferred to the Magoya arsenal.

Nagoya arsenal.—The Nagoya arsenal manufactures wagons, carts, limbers, engineering material, trucks, motors, forgings for artillery shells, and a few airplanes and aircraft engines.

Osaka arsenal.—The Osaka arsenal consists of a main arsenal in the city of Osaka and several branches in near-by towns. Osaka plant is the principal artillery arsenal of Japan, and manufactures everything from 37-millimeter infantry guns to 14-inch guns and howitzers. The 3-inch field pieces and 15-centimeter howitzers which constitute the chief mobile artillery weapons of Japan are manufactured here. Projectiles, trucks, caissons, and searchlights are also manufactured here. Smokeless powder is manufactured at the Uji branch; wagons, saddlery, and projectiles at the Kokura branch; and cartridge cases at the Nagoya branch.

Heijo arsenal.—Heijo arsenal manufactures small arms, ammunition, wagons, harness, and small articles of equipment. It is a small arsenal and is at present more important as a repairing and distributing arsenal than as a manufacturing arsenal. Its strategic location near the northern border of Korea is important.

Aeronautical supply stations.—These supply stations at Kagamigahara and Tokorozawa are primarily distributing centers, but do a limited amount of manufacturing. Airplane parts are produced.

PRINCIPAL NAVAL ARSENALS

Kure.—Shipbuilding, ship repairs, armor, guns, torpedoes, ammunition, aircraft, and Lorraine aero engines.

Yokosuka.—Ships, submarines, engines, mines, torpedoes, aircraft, and aircraft engines.

Sasebo.—Light cruisers, destroyers, submarines, engines.

Maizuru.—Destroyers.

Hiratsuka (with branch at Takinogawa).—Explosives and propellants.

PERSONNEL

Army.—While no figures are available as to the actual output of army and navy arsenals, some idea of the relative importance of the plants can be gained from the numbers of workmen employed. These personnel figures, gathered from various (and often conflicting) sources, are as follows:

| | |
|--|---------|
| Main Tokyo arsenal..... | 3, 943 |
| Branches near Tokyo..... | 4, 680 |
| Nagoya arsenal..... | 1, 916 |
| Osaka arsenal and branches..... | 5, 070 |
| Heijo arsenal..... | 290 |
| Air supply stations (Tokorozawa and Kagamigahara)..... | 1, 503 |
| | <hr/> |
| | 17, 402 |

The personnel on duty at various army headquarters and at smaller factories producing clothing and equipment bring the grand total of the civilian employees of the army arsenals and factories to 21,299.

It is significant to note the number of workmen employed in army arsenals over a series of years. These figures are as follows:

| | |
|------------|---------|
| 1920 | 27, 685 |
| 1921 | 24, 016 |
| 1922 | 20, 478 |
| 1923 | 17, 402 |

Navy.—The estimated number of workmen engaged on munitions manufacture at various naval stations are as follows:

| | |
|----------------|---------|
| Kure | 30, 000 |
| Yokosuka | 9, 000 |
| Sasebo | 10, 000 |
| Maizuru..... | 6, 000 |

CIVILIAN PLANTS

The principal munitions plants, other than army and navy arsenals, are producers of aeronautical equipment and steel. The following are the most important:

Yawata Steel Works.—23,000 workmen; capital ¥120,000,000.

Japan Steel Works.—Plants at Muroran and Hiroshima—6,500 workmen; capital ¥30,000,000.

Tokyo Gas and Electric Engineering Co.—2,000 workmen; capital ¥1,150,000. Produces Avro planes and Nieuport planes.

Mitsubishi Internal Combustion Engine Co.—1,500 workmen; capital ¥5,000,000. Produces Mitsubishi planes and Hispano-Suiza engines.

Kawasaki Dockyard Co., Aviation Department.—1,000 workmen; capital ¥90,000,000, of which ¥56,000,000 is paid up. Produces Salmson planes, Salmson engines, and Dornier planes.

Aichi Clock and Electric Works.—300 workmen in aircraft department; capital ¥5,000,000, of which ¥1,950,000 is paid up. Produces seaplanes and *F-5* flying boats.

Japan Airplane Co. (Nakajima Co.).—300 workmen; capital ¥1,150,000. Produces Avro planes and Nieuport planes.

In addition to the plants listed above, Japan possesses a large number of industrial concerns which could be readily converted into munitions plants. These consist principally of machine shops which could manufacture wheeled vehicles and artillery; power plants, especially hydroelectric plants, which could supply power for nitrate fixation and the manufacture of explosives; steel plants which could be enlarged for the manufacture of artillery ammunition; and general factories which could produce horse equipment and the personal equipment of the soldier. A complete list of such concerns would be practically the entire commercial and industrial directory of Japan. Nothing is known of the Government's plans for "industrial mobilization." However, the great interest displayed by the Japanese War Office in American plans for industrial mobilization leads one to believe that the Japanese general staff is seriously studying methods whereby the industries of Japan can be adapted to munitions manufacture in emergencies.

Naval Ordnance

(From U. S. naval sources)

The Government ammunition plants in the vicinity of Tokyo were inspected February 20, 1922.

Number of plants: Three.

Names, size, and location: Itabashi, 78 acres, 5 miles from center of Tokyo, northeast; Juho, 103 acres, adjoining Itabashi on the east; Oji, 33 acres, three-fourths mile east of Juho.

General: All plants are administrative branches of Tokyo arsenal.

Itabashi.—A large, excellently equipped and arranged plant, compared to anything in the United States of a similar nature. The small-arms powder for the entire army is made here. Capacity not divulged to inspector, but apparently sufficient and capable of expansion if necessary. Work at present is slack, with only 600 employees. The powder produced is a bluish gray, thin nitrocellulose flake, each flake about one-sixteenth inch square. The cellulose is not nitrated here but at Oji (described later). In addition to small-arms powder, the paper containers for high-explosive shells are filled here, using T. N. T. and a picric-acid explosive, and sent out to regiments for insertion into projectiles. The containers for both field and coast artillery are filled at this plant. The picric-acid explosive referred to is a yellow powder described later. This explosive and T. N. T. are the only two high explosives used by the army as shell fillers—so the guide said. The navy still used Shimose.

Another section of this plant manufactures fuses and primers of all descriptions. Equipment is sufficient and up to date, but machines are largely of foreign make—principally from the United States (Brown & Sharpe's). Work at date of inspection was very slack with most of the machines out of use.

Juho.—This plant is, I believe, not inferior to any of a similar nature in any country. Machinery is sufficient and buildings are large and well arranged. The rifle and machine-gun ammunition for the entire army is made here. Machines and materials are similar to those used generally in other countries and will not be described. It is sufficient to say that the plant can care for a tremendous demand for small-arms ammunition. The great activity in this plant was in some contrast to the lack of activity in all the others.

Oji.—This plant produces the nitrocellulose for small-arms ammunition, T. N. T., and "yellow powder" (a picric acid "H. E."). At a plant near by is produced also mercury fulminate, but this plant was closed to the inspector. Alcohol and ether are purchased from civilian factories. Both sulphuric and nitric acids are made here in quantity, but these chemicals are purchased from near-by civilian factories if the local supply should be insufficient. The pyrites for the sulphuric acid are produced in Japan. Nitrate for nitric acid is bought from Chile. Phenol for picric acid is purchased from civilian firms. Cotton for nitrocellulose is waste bought from spinning mills, but these in turn import it. Benzene

for T. N. T. comes from gas and coke plants. The equipment of the plant is excellent and—assuming plenty of raw materials—of sufficient capacity to fill large orders. At present work is slack, but the men are kept on to avoid labor trouble. This attitude toward employees is not peculiar to Government factories.

Nitrocellulose for cannon is not made at this plant, but at Osaka. "Yellow powder," used as a shell filler, is in odor and general physical characteristics similar to our "Explosive D." However, it is first melted and run into a stiff paper container before insertion into the shell.

No black powder is made at any of these factories, but at Megura, near Tokyo. This plant is to be turned over to civilian control. No explosive of any kind for army use, except dynamite, is at present made by civilian factories.

JAPAN

NOTES ON TAIWAN (FORMOSA)

May, 1925

The following information is from a source believed to be reliable:

Fortifications.—The following places are being fortified: The south side of entrance to Takow Harbor and the end of peninsula to westward of Kwailiang Bay (south of Koshun).

Aviation stations.—The army has established an aviation base at Hozan, where about six hangars, each capable of housing three single seaters, have been erected. There are also large wireless towers here. The police aviation station is at Heito, near Ako (or Akao). There are at present no hangars here.

Railways and roads.—A line has recently been completed from some point on the Taikoku-Kelung line to the eastward and southward along the coast as far south as Giran. It is planned to build a line from either Taichu or Kagi across the mountains to the east coast. It is eventually intended to extend the line from Giran down the east coast.

It is planned to build a military road the length of the island. The section from Kelung to Taikoku is 60 feet wide; much of the road is already completed except for bridges.

Oil.—The producing oil field is to the eastward and not far from Kagi. There are seven producing wells here.

Hydro-electric.—The Lake Candidius hydro-electric development is at a standstill due to lack of funds. Much of the engineering equipment is deteriorating.

Agriculture.—The Government agriculture farm at Taichu has made the only success on the island in sheep raising and has a fairly large flock. This farm would be able to supply many provisions for an army.

JAPAN

POLITICAL NOTES

April, 1925

(Prepared by M. I. D.)

There has been considerable new alignment in Government circles at Tokyo. Count Hirata, Lord Keeper of the Privy Seal, has died, and Viscount Makino, Minister of the Imperial Household and leading personal advisor to the Prince Regent, has been appointed in his place. Mr. Ichiki, a former cabinet minister, is mentioned as the new head of the imperial household, and Count Uchida, formerly Minister of Foreign Affairs, has been appointed a member of the privy council. Viscount Takahashi has definitely given up his position as head of the Seiyukai party and resigned as Minister of Agriculture and Commerce. General Baron G. Tanaka has accepted the chairmanship of the Seiyukai party but refused a seat in the cabinet, thus strengthening his chances of eventually becoming Premier of Japan.

The Ministry of Agriculture and Commerce has been split into two ministries. One will be called the Ministry of Agriculture and Forestry and the other the Ministry of Commerce and Industry. This change is a natural step in the evolution of a State in which industry is rapidly gaining in relative importance.

The alien land ownership bill passed by the last Diet has been published in the Japanese Official Gazette. However, as an imperial ordinance is necessary before it may become effective, it is not known when it will go into operation. A second imperial ordinance will be necessary to enforce the nonownership provision against the citizens of other countries or states not permitting Japanese land ownership. A previous land ownership bill waited about 15 years, and the imperial ordinance to make it effective has never been given. Even if the first ordinance is issued, it is highly improbable that the second imperial ordinance referred to above will be promulgated.

During the past few weeks there has been a distinct effort to encourage good feelings among the Americans toward Japan by the Japanese ambassador in several well-prepared speeches. His Washington speech in which he drew a vivid picture of the Lincoln Memorial in a setting of Japanese cherry trees in bloom as typical

of the cordial relations existing, and his New York speech before the Federal Council of Churches denouncing an American-Japanese war as "a matter of physical impossibility" were widely quoted in the American press and brought out considerable editorial praise.

Meanwhile, Mr. Bancroft, the American ambassador in Japan, has also been active. His visit to Shimoda on April 18 aboard a Japanese destroyer to commemorate the arrival of Commodore Perry in Japan 70 years ago was the occasion for speech-making and a great demonstration participated in by many leading Japanese and thousands of children with flags and flowers.

At latest reports, the Japanese press were taking very slight notice of the American fleet maneuvers about Hawaii and the coming visit to Australia. This is quite contrary to the scathing denunciations pronounced by this same press during the past winter whenever the Pacific maneuvers were mentioned.

The new Russian ambassador to Japan, Victor L. Kopp, arrived in Tokyo April 24th. Prior to his arrival, an alleged speech at Harbin was published widely in the Japanese press. In this he was quoted as saying that he came to continue soviet propaganda and foment revolution, and that the Russo-Japanese treaty would be made a scrap of paper as it was a mere stepping-stone to recognition by the United States. Naturally his first public remarks in Tokyo were a vigorous denial of this alleged speech. The new anti-radical bill has meanwhile become a law and has been widely advertised to the Japanese people.

Mr. T. Tanaka, at present head of the Japan Times in Japan, will probably be selected as the new Japanese Ambassador to Moscow. He has served in the consular and diplomatic service at points in the United States and the Far East, and was formerly Vice Minister of Foreign Affairs.

JAPAN

MISCELLANEOUS NOTES

(From the Japanese press)

Airplane carrier Akagi launched

The airplane carrier *Akagi* was launched at Kure on April 22.

During the past 28 months the plans have been changed several times, and in August, 1924, drastic changes were effected. On an average of 1,000 workers have been employed daily.

The *Akagi* will carry three kinds of planes—scouting, battle, and pursuit planes. Planes will take off from forward and will return

aft. Above the present deck another deck is to be built for returning planes.

Her characteristics are given as follows:

Displacement, 26,900 tons.
 Length, 763 feet.
 Beam, 92 feet.
 Draft, 21 feet 2 inches.
 Speed, 28.5 knots.
 Engines, 4 steam turbines.
 Boilers, 17 technical department type.
 Searchlights, 4.
 Guns:
 Ten 20-centimeter.
 Four 12-centimeter.
 Twelve 12-centimeter antiaircraft.

Cruiser "Kako" launched

The *Kako*, which was launched at Kawasaki dockyards, Kobe, on April 10, 1925, is a sister ship of the *Furutaka*, which was launched at the Mitsubishi works, Nagasaki, on February 25, 1925. Details of *Furutaka* appeared in the May, 1925, BULLETIN.

Submarine "I-52" to be turned over to Navy May 20, 1925

The *I-52* (1,400 tons) will be turned over to the Navy on May 20, 1925. On April 23, 1925, submerged runs were conducted and passed successfully.

The *I-51* and *I-52* will form the Seventeenth Submarine Division and be attached to the Second Submarine Squadron.

Abandonment of flight to Kurile Islands

The Kasumigaura-Kataoka-wan flight which was to take place the early part of May has been given up, due to heavy fogs now prevailing there.

Instead of the Kurile flight, a flight from Kasumigaura to Otomari and Karafuto and return will be carried out, a distance of about 2,000 miles.

Two Seal amphibian planes will be used and will leave Kasumigaura on May 4 for Ominato; leave Ominato May 5 for Otomari; leave Otomari May 6, and will reach Kasumigaura May 7.

Improved "F-5" hydroplanes

Two *F-5* hydroplanes which were recently built at the Hiro Yard and which are to be sent to Yokosuka contain many improvements.

The Rolls Royce 370-horsepower motor which has heretofore been installed has been replaced with the Lorraine 400-horsepower motor built at the Hiro Yard. The Rolls Royce has a large radiator in front, which was very objectionable. The new motor built at Hiro Yard is covered with light sheet metal, and the radiator has been placed below the motor.

The four-blade propeller has been replaced with a two-blade propeller. The adoption of the two-blade propeller was the result of long and careful study of the relation between the propeller and horsepower and revolution of the motor.

There have been other improvements made to the fuel pumps and other parts, making the *F-5* much more powerful than before.

Number of Japanese naval aviation companies

The Navy Department in making up the budget for the fiscal year 1926-27 has made provisions for an increase of $2\frac{1}{2}$ companies, thereby bringing up the total for the fiscal year 1926-27 to $14\frac{1}{2}$ companies.

Hiro, which is now attached to Sasebo, is to be made an independent station beginning next fiscal year.

The number of companies at present at the various stations is as follows:

| | Companies |
|-----------------|----------------|
| Kaumigaura..... | 6 |
| Yokosuka..... | $2\frac{1}{2}$ |
| Sasebo..... | 2 |
| Omura..... | 1 |
| Hiro..... | $\frac{1}{2}$ |
| Total..... | 12 |

Changes of assignments of flag officers

The following changes in flag officer personnel have been announced:

| | New assignment |
|-----------------------------|---|
| Admiral G. Yamashita..... | Member of War Council. |
| Admiral Prince Fushimi..... | Do. |
| Admiral K. Suzuki..... | Chief of General Staff, also member of Board of Admirals. |

| | |
|----------------------------------|--|
| Admiral I. Takeshita----- | Member of War Council. |
| Vice Admiral K. Abo----- | Commander in chief, Kure. |
| Vice Admiral S. Hyakutake----- | Commander in chief, Sasebo. |
| Vice Admiral (Eng.) T. Okazaki-- | Attached to General Staff. |
| Vice Admiral Y. Masaki----- | Do. |
| Vice Admiral K. Matsumura----- | Do. |
| Vice Admiral M. Osumi----- | Appointed Vice Minister, also member of Board of Admirals. |
| Rear Admiral K. Yamanashi----- | Superintendent Yokosuka Yard. |
| Rear Admiral T. Inuzuka----- | Commanding Chinkai Station. |
| Rear Admiral (Eng.) T. Shimizu-- | President Engineer School. |
| Rear Admiral (Eng.) T. Kawaji-- | Attached to General Staff. |
| Rear Admiral T. Otera----- | Do. |
| Rear Admiral M. Kumashiro----- | Do. |
| Rear Admiral K. Nomura----- | Attached to General Staff and Navy Department. |
| Rear Admiral H. Teraoka----- | Commanding Third Division. |
| Rear Admiral R. Miyamura----- | Attached to Kure Station. |
| Rear Admiral O. Nagano----- | Commanding First Foreign Service Squadron. |

Replacement program for noncapital ships

ARTICLE.—“It is time the navy should be planning a noncapital-ship replacing program, and this ought to be included in the coming budget. The Navy Department has been studying this question. However, should this item be included in next year’s budget it does not mean naval expansion; it is merely a replacement program for ships which have become obsolete. From a standpoint of efficiency the newer ships will be much more efficient than the old ones now afloat, but as regards numbers there will be no increase. The Washington treaty made no stipulation as to the age of noncapital ships and when the replacement can be built. Japan in deference to the spirit of the treaty is to take the age limit as mentioned in the original proposal at Washington, namely, 17 years for cruisers and 12 years for destroyers and submarines, and the replacement will be planned accordingly.

“In accordance with this the following ships will have to be replaced:

“*Cruisers.*—(4) *Tone, Chikuma, Hirato, Yahagi.* These ships were completed between 1910 and 1912 and according to the original proposal at the Washington Conference replacements for these can be laid after the next fiscal year.

“*Destroyers.*—(15) *Umikaze, Yamakaze, Urakaze* (first class); second class, *Sakura, Tachibana, Kaba, Sakaki, Kayede, Katsura, Ume, Kusunoki, Kashiwa, Matsu, Sugi, Kiri.* These are all about 12 years of age.

"*Submarines*.—There are some which have reached the age when they should be replaced.

"Should the Navy Department make up a replacement program it is likely to cover the period 1926–27 to 1931–32.

"As England is to build 5 cruisers and 2 destroyers, and the United States, in spite of her just having completed 10 modern cruisers, is now to build 8 cruisers of the 10,000 class, it is but fair to Japan to build replacements for obsolete ships, and though it is rather late in doing so, we should be starting beginning the fiscal year 1926–27."

ARTICLE.—"The first replacement program which was made out shortly after the Washington Conference by Admiral Baron Kato, then minister of the navy, extended from the fiscal year 1922–23 to 1927–28 and further postponed one year on account of the earthquake is nearing completion as per schedule, leaving two 10,000 cruisers and several destroyers and submarines yet to be completed.

"In order to maintain the present strength, it is necessary to replace those ships which are going out of commission after 1929–30; and since our navy yards take at least 30 months to build a cruiser, they must start building in 1926–27 in order to replace ships in 1929–30, and the Navy Department is now working on this, preliminary to making up the naval budget for 1926–27.

"The Navy Department is expected to encounter much difficulty in putting through their plan due to financial conditions; so this replacement will have to be made under a continuing expenditure, lasting five or six years. The last three years' work of the first program still remains; therefore the proportionment of the first year of the second program will be about ¥10,000,000, while the total amount of the second program is expected to reach between ¥500,000,000 to ¥600,000,000. The meeting of the superintendents of the various navy yards is scheduled to take place in the middle of May, at which time the matter will be discussed, and will then proceed to make up the budget for the fiscal year 1926–27.

"In view of the activities of other countries—England constructing five cruisers and two destroyers; the United States, just after completing 10 cruisers of 7,500 tons each, is now to build eight 10,000 cruisers—our navy also must build new ships to replace those which reached the age limit. The following are the ships:

"*Cruisers*.—*Tone*, *Chikuma*, *Hirato*, and *Yahagi*.

"*Destroyers*.—*Umikaze*, *Yamakaze*, *Urakaze*, *Tachibana*, *Kaba*, *Sakaki*, *Kayedo*, *Katsura*, *Ume*, *Kusunoki*, *Kashiwa*, *Matsu*, *Sugi*, and *Kiri*.

"While it is necessary to include the expenditure for the replacement of some of the above in the next budget, it is doubtful whether or not the Finance Department will approve of it in view of the

fact that the first program is not yet completed, also due to lack of funds, and therefore the Navy Department is undecided to include the item for replacement in the next budget. However, should the plan go through it is likely to cover the period 1926-27 to 1931-32."

Oil supply for Japanese Navy

"The Japanese Navy is confronted with a grave fuel problem," stated Capt. J. Sezaki of the special service ship *Ondo*, which brought heavy oil to Kure on April 11 from the South Sea Islands. Commenting on the fuel situation now menacing Japan, Captain Sezaki is quoted as follows: "Heretofore heavy oil has been supplied to the Japanese Navy mainly from Borneo and California. But the United States, because of a decrease in oil production, now refuses to sell us oil after the termination of the present contract.

"The Japanese Navy obtained the oil supply contract with the Standard Oil Co., when the United States felt herself more than sufficiently supplied, subsequent to the Washington Disarmament Conference. Yet now Japan can not buy oil from that country any more.

"Furthermore, the oil supply from Borneo has also virtually ceased, as it is to be taken away to the British naval base at Singapore, although at most the oil obtainable from Borneo amounted to only half of the navy's need.

"The only place from which Japan can get oil is Karafuto, where Japan has oil concessions; but it is doubtful whether Japan will be able to get a sufficient supply from that region.

"At this moment, when heavy oil predominates as the fuel for all new warships, the stoppage of the oil supply from abroad means a fuel crisis to the Japanese Navy."

Defense of Tokyo from air attacks

The Navy and Army are planning defenses against air attacks, as follows:

First line of defense.—Four antiaircraft forts will be built in the following places with Tokyo as the center, radius of 200 miles: Vicinity of Omiya, Shizuoka-ken; Fujimi, Nagano-Ken; Yamabuto (?.), a mountain pass on the boundary between Tochigi and Fukushima-ken; and Hitachi mine, Ebaragi-ken.

Second line of defense.—Four antiaircraft forts 100 miles from Tokyo as follows: Vicinity of Hachioji, vicinity of Kumagaya,

vicinity of Otaki, Province of Kazusa; and vicinity of Tsukuba-san (mountain) Province of Hitachi.

Third line of defense.—To consist of railroad battery using the Government-owned electric lines encircling the capital, supported by the navy on water.

All the defenses will be in direct communication with the center, the capital, and each will be equipped with aerial sound detector, high-power telescope, antiaircraft guns, etc. The expenditures covering these items will be included in next year's navy and army budgets, and should they be approved by the Diet, work will be started at once.

While plans for the defense of the capital against air attacks are being made jointly by the army and navy, the navy is feeling the necessity, of establishing defenses to protect Tokyo and Yokosuka from air attacks and it has been decided to organize a board of investigation to study the best method and for this purpose about ¥700,000 is expected to be listed in the coming year's budget.

Survey of Island of Quemoy by Japanese, April, 1925

The Japanese have just completed a survey of the island of Quemoy, just off the port of Amoy. (Fukien Province, China.)

The surveying party was ostensibly a trade and business commission which made as incident to its visit to the island a meteorological survey of it.

The actual survey is said to have been for the purpose of locating a submarine base and flying field.

There were three Japanese submarines in the harbor of Amoy at the time of the survey. A development of this island as a base for submarines would make it possible in connection with the present established base at Tainan, on Formosa, to block the channel between Formosa and the mainland.

Military training begins in public schools

(Source: M. I. D.)

In April, 1925, the Japanese Official Gazette published the students' preliminary military training act together with the joint order of the departments of war and education, giving rules for putting this act into immediate effect.

This brings to a successful consummation the efforts of the officials of the Japanese War Department to place army officers in the higher grades of the public schools to enforce drill among the students.

There is no doubt that the example of the Reserve Officers Training Corps of the United States to some extent influenced the Japanese War Department. The passage of the army reform bill in the last session of the Diet, whereby four regular divisions are abolished, provides the funds necessary as well as supplies the officers for enforcing this training. While several hundred Japanese officers, chiefly in the higher grades, will probably be forcibly retired, about 1,200 of the company and field ranks will be detailed as instructors in the public schools.

In the Japanese school system the elementary school extends over the first six years. The next five years' work is logically covered in the middle school, and this is followed by a three years' course in high school before reaching the college or university. However, above the elementary schools are numerous normal, technical, and business schools attended by many students who do not go to the regular middle or high schools.

In the year 1920-21 there were 10,435,000 students in Japanese schools. Of these about 8,633,000 were in the elementary schools and 70,000 in the colleges and universities. An examination of the new law, in the light of statistics, indicates that probably about 400,000 male students generally between 14 and 22 years of age, will be compelled to take military training in the schools and about 170,000 more may voluntarily do so.

JUGOSLAVIA

Aviation note

The following appeared in the *Corriere Della Sera* of April 11, 1925:

"The Jugoslav press announces the arrival of a large number of planes purchased from the French factories Devoitine and Breguet. Jugoslavia is becoming an aeronautical power of which friends and enemies will soon have to take account.

"It is announced that in the month of May there will be held at Novisad an aeronautical review in which 150 planes will take part."

MOROCCO

NOTES ON PRESENT CONDITIONS

May 15, 1925

(Source: M. I. D.)

French difficulties in the zone of her protectorate in Morocco were announced to the world on April 30 last, since which time dispatches have appeared daily filled with rumors and conjectures regarding the progress of this new war in Africa.

As a matter of fact, the situation is not a new one at all. Following the conclusion of the war, the French redoubled their efforts toward extending the controlled areas in the protectorate, operations being undertaken on a more or less extended scale since 1919 for this purpose.

Spanish control in the northern zone reached its high tide in 1922. From then on reverse followed reverse until the present low ebb was reached. It would seem that a strong French offensive in 1922 in conjunction with Spanish efforts to the north would have once and for all put an end to the Rif tribes. But this was not the French plan evidently. Within two years the Spanish-controlled area had dwindled from nearly one-third of their zone to a mere fraction, which they hold with difficulty to-day. Spanish administration in the zone assigned to her in the treaty of 1912 is nonexistent outside of Melilla and the Ceuta-Tetuan-Larache area.

The Rif tribes, the most warlike of whom acknowledge the field leadership of Abd-el-Krim, have not been slow to realize on the situation. Their entire Mediterranean coast line was open to European arms traders desiring quick profits, and rumors have it that these traders were of both the nationalities most interested—Spanish and French.

With no Spaniards to annoy them, the Rifs have now turned their attention southward toward Fez, which stands on the great valley line between Algiers and the Atlantic, only 60 miles from the international border, which the Rifs may pass with impunity but which, on land and in the air, is forbidden to the French.

As far as military operations are concerned, the French should have little difficulty in ejecting the turbulent Berbers. Probably not more than 20,000 of Abd-el-Krim's followers are actively in the field, armed only with small arms and a very few field pieces, while the French-Moroccan forces number over 70,000 well armed, thoroughly equipped, and well-led men, with numerous airplanes.

But the military situation is of only minor importance as compared with the political one. France, by treaty, now holds seven-eighths of Morocco. Spain has shown that she can not control her one-eighth. The natives of that eighth, having ousted the Spanish, are now seriously annoying the French. Therefore, why should not France take over that worrisome eighth? Is it not an equitable step for her, especially if it can be proven to the world that she is forced to follow her present tormentors over the international border in self-defense? It is a sort of a dog-in-the-manger situation. Spain, with treaty law on her side, can not do the job; France legally can not, but unquestionably she has the power to subdue the recalcitrant Rifs in one season's forceful campaign.

The result of this is apparent at once when the map is consulted. French interests in Tangier, as defined in the treaty of December, 1923, are bound to be paramount. Could Tangier with Ceuta be linked up to the protectorate, Gibraltar would be neutralized and British control of her highway to the east seriously menaced.

Mussolini has stated that Italy must be consulted before any changes are considered in the Mediterranean Basin.

The whole matter, however, seems to simmer down to this: As long as the Rifs can freely receive munitions from the coast they can not be subjugated by the French remaining on their side of the present boundary. So, by very force of circumstances, France may be forced to enter the Rif—that is, the Spanish zone—and, once in, when interest, desire, and necessity all lead the way, who is there to put a limit to her advance?

The situation seems to hold as much potential explosive material as did that of March, 1905, when the Kaiser appeared on his yacht at Tangier.

French and Spanish military organizations.—French and Spanish efforts towards the pacification of Morocco have been so featured in the newspapers for the past six months that it may be of interest to see just how each country has organized its forces to combat the warlike Rif tribes led by their capable leader Abd-el-Krim.

At present Spain maintains four strongly garrisoned posts in her zone which stretches from the mouth of the Moulouya River, on the Mediterranean east to Melilla, to south of Larache on the Atlantic. These four posts are Melilla, Tetuan, and Ceuta on the Mediterranean and Larache.

The organization of the Spanish colonial army in Morocco was published in Madrid on March 26, 1925, as follows:

Resumé, Spanish Troops

| | Officers | Men | Animals |
|---------------------------------|----------|--------|---------|
| Infantry..... | 1,200 | 39,159 | 6,644 |
| Cavalry..... | 159 | 3,523 | 2,858 |
| Artillery..... | 333 | 10,380 | 4,257 |
| Engineers..... | 186 | 7,347 | 1,369 |
| Quartermaster corps..... | 73 | 3,301 | 1,931 |
| Medical department..... | 132 | 2,252 | 655 |
| Veterinary..... | 73 | | |
| Chaplains..... | 33 | | |
| G. S. (topographic, etc.)..... | | 49 | |
| Sea (stevedores) companies..... | | 488 | |
| Aviation..... | 56 | 415 | |
| Total..... | 2,245 | 66,914 | 17,714 |

In addition to the above, 381 officers and assimilated personnel from different arms, and 63 clerks are also attached to the administration of the protectorate.

Native troops.—Five groups of “Regulares” of the following prescribed strength: Officers, 458; enlisted men, 10,876 infantry and 2,180 cavalry; and 3,871 animals. Five groups of “Mehal-la Jalifiana,” with strength varying according to circumstances, but usually, from 500 to 1,000 enlisted per group.

When the organization of her permanent army in Morocco is completed, Spain will have about 65,000 Spanish troops and some 15,000 native troops in all.

It is interesting to note that Spain relies almost entirely on her own nationals for this trying military service, the proportion of native troops being about one to four Spaniards in the zone.

France, on the other hand, reserves this proportion in the protectorate.

At the beginning of 1924 the strength of the corps of occupation in Morocco was about 65,000 men. This comprised 55,000 men of the regular forces, as follows:

- 43 battalions of infantry.
- 16 squadrons (really troops) of cavalry.
- 2 squadrons of cavalry armored cars.
- 22 batteries of artillery.
- 10 air squadrons.
- services.

Of the above only 7 of the 43 battalions of infantry were French battalions, and of the 7 French 4 were Zouave, which really serve only as depots for the instruction of the French noncommissioned personnel of the native troops. They do no fighting. The other three French battalions are the African battalions, penal battalions which may serve only in Africa. Of the remaining 36 battalions 9 are Foreign Legion and 27 are natives—Moroccan, Algerian, Tunisian, and Senegalese—but all Regular Army.

The other 10,000 men are included in one of three distinct categories:

1. Mixed Goums of Morocco.
2. Maghzen, Mehallas of the region of Marrekech.
3. Partisans.

There are also being organized two Saharan companies. These native troops are peculiar to Morocco. The Goums were formed to circumvent the treaty of Algeciras by the terms of which Germany would have claimed France was usurping the authority of the Sultan if she had raised regular troops as she had done in Algeria. They were local police forces which in reality rendered the same service as did regular troops and did it so well that even with the German mortgage lifted, and in spite of the consequent enlistment of Moroccan spahis and riflemen, the mixed Goums have been retained.

There are now 27 of them, each consisting of three-quarters of infantry and one-quarter cavalry, officered by French officers of the information service and with French or experienced natives of the Regular Army as noncommissioned officers. Unlike the other irregular troops, they wear in part French army uniform, notably breeches.

The Maghzen are permanent troops of infantry and cavalry under the orders of the officers of the information service. Their strength, never very great, varies according to the posts and regions where they are employed. Unlike the Goums, they have no French officers or N. C. O.'s, and obey directly a native leader. Their job is to assure the police and security of the post to which they are assigned, to make patrols and to protect convoys and escorts.

The Mehallas are semipermanent forces of infantry and cavalry, with no French officers or N. C. O.'s, which are recruited when needed by the great caids of the south (Marrakech) under the control of the officers of the information service. They are all that remains of the Moroccan armies of former times.

The Partisans, on the other hand, are in no way permanent, but are the horsemen and foot soldiers of the friendly tribes who volunteer to take part in any determined military action during a comparatively short period. For this they receive a daily pay, a rifle, and some cartridges. In combat they are directed by the particular officer of the information service who is assigned to their tribe.

The difficulties of the operations in Morocco can be visualized by quoting from an account given by an officer on the staff of the French resident general, Marshal Lyautey:

Our first contacts with the natives were decisive, great hordes coming out at the call of a marabout from the most distant tribes confident in his power to annihilate us and counteract any effort of our arms, hurling themselves in dense masses against our cannon and machine guns. At Djorf in 1903, at Sidi-Bou-Athmane in 1912, while General Mangin was marching on Marrekech, the victory was immediate and complete.

Those happy days have passed!

The Berbers now know the force of our arms; they have in a marvelous manner applied their manner of fighting to their own warlike habits and to the terrain which they are defending.

As to their warlike qualities, an absolute disregard for danger, alertness, physical vigor, as well as a surprising ability to maneuver on all kinds of terrain, an instinctive knowledge of surprise attack, cleverness in discovering the weaknesses of the adversary, and in taking immediate advantage of them, are some of the most manifest. Their contempt for danger, warlike zeal, all who have served in Morocco can testify to these qualities.

Their physical vigor is most extraordinary under all circumstances, whether their faces are torn by the "sirocco" and burning sand, as was true at Skoura in 1918, or whether it be a raging snow blizzard lashing their half-naked bodies, as through the bitter night of the "Aouinettes" in 1913, or yet being beaten down by the hailstones of such an icy deluge as was experienced at Bon-Arfa

last May. The endurance of the "Djicheurs" in descending the slopes of the Atlas in the heat of summer to scour the Sahara seems a feat almost supernatural to us of the civilized but more anemic races.

Their ability to operate on any terrain is almost unbelievable. In 1913 at Ras Amras a guard detachment which had just completed an hour's hard climb to the peak it had been ordered to occupy observed the Chleuhs down in the valley and continued to fortify themselves rather at their ease, thinking they had an hour to spare. A quarter of an hour afterwards they were attacked in hand-to-hand conflict by those same Chleuhs.

From his early childhood the chief ambition of the young Berber is to become strong and artful. This is most natural, for he learns early in youth, from observation of his surroundings, that life for him will be one perpetual struggle for the "survival of the fittest." Night and day the Berber stands guard against his hostile neighbor of the neighboring tribe. Thus he follows his father and brothers to the hunt—even to war. Very young, he rides horseback; at the first opportunity he buys a rifle, or more probably steals one. The very folk songs chanted by the women of the tribe at night under the tents impress deeply into his mind that he can not be worthy of being called a man until his exploits and acts of bravery and valor shall have been recognized and chanted by the womenfolk, as they are now singing the deeds of his ancestors. In the eyes of the Chleuhs the action of theft under arms is an accomplishment worthy of great honor, admiration, and esteem; so the young Berber longs and seeks the first chance to try his skill. He soon takes part in one of the customary undertakings of his tribe, known as the "rezzou," organized to annoy the neighboring tribe; or still another operation known as the "djich," the motive of which is to take by surprise the French trains, labor parties, or other small detachments. This innate thirst for plunder is one primary reason why the French recognize the advisability, in order to get along peaceably with the Chleuhs, of respecting the lands of these unruly tribes. Unless such a policy were adopted, a continuous attack by night and day by hordes of them would result. The French posts, convoys, and communications would be in constant danger.

In spite of all this, these incorrigible thieves seem to have a character which contains certain noble traits. For instance, they observe scrupulously certain time-honored traditions—and, strange to say, keep their word. They have a clear understanding of the rules of hospitality, which they respect warmly. If we go back to the early part of the Middle Ages we will discover curious resemblances, even in looks, between these mountaineers of the Moroccan Atlas and the men who have become the world's models of chivalry.

But let us follow the fortunes of a force which, with the object of taking over new territory, proposes to build an advanced camp. The enemy spies give the alarm. In a flash fires are kindled calling out the warriors, who rush from their "douars"; the foot soldiers jump into the saddles with the cavalrymen, or hang onto the tails of the horses; far back in the mountains the sound of our cannon will bring out the others; it is the "Call to arms." In a short time a curtain of sharpshooters is formed; upon the crests, at the mouths of the ravines, they hide themselves awaiting the coming of the advance guard. The sun, the dust, and the winter tempest have given to the clothing and skin of these fighters the very color of the ground they are defending—and they seem to melt into it. Woe to the band of invaders that is too weak or too dispersed, or which arrives out of breath or in disorder and dares to venture beyond the protection of its neighbors or out of sight of its artillery—in a flash the alarm announces their approach, and from all sides the war cry of the

Berber rings out, "Aoura, Aoura!" (Come on! Come on!)—and out of the tiny ravines, out from behind every imaginable shelter, the assailants filter down upon their victims with almost unbelievable rapidity. A few seconds and the firing begins, becoming more and more intense and close up, until it comes to a hand-to-hand conflict.

"But the signal has likewise been given to the French forces, and artillery shells and machine-gun bullets rain down on the enemy, who disappear at once as rapidly as they had appeared, carrying off their wounded and their dead—but also a quantity of French arms and munitions. Sometimes the line drawing back gives up a little ground in so doing, but not without continuing the firing, until the terrain is sufficiently favorable to warrant a counterattack, which they undertake in fury.

It is against the flanks of a moving detachment, and to the rear, that they find their best opportunity to make trouble, so consequently most of them go in that direction. They come in swarms to harass the flank guards; a summit is scarcely evacuated by the last echelon before it is covered by the sharpshooters who have been, up to this moment, dispersed around about, all in spite of a veritable shower of shells. Having been so scattered about in the bushes and behind rocks, no definite objective was offered to the artillery, whereas the sharpshooters, once having thus gained the summit and profiting by the facilities of adjusting their range, snipe off the cavalymen and the infantry platoons still in movement. Everywhere the instant a vacant position is spotted, they swarm in to encircle it, taking advantage of every natural vantage point, and gradually coming nearer to their coveted prey, the main guard slowly moving along down in the valley below.

And if, by chance, the French column reverses its direction of march, if, in any way, the new direction which they may have taken can be construed by their desperate assailants as a retreat, their warlike fury reaches a degree hard to comprehend. Their attack becomes really maddening; urged on by the shrieking of their womenfolk, all of them, even any who before may have been somewhat hesitant, appear all round the horizon; onward, through the rain of machine-gun fire and shells they rush, wedging in and out through the underbrush and rocks until they are right up onto the French units already hampered by having to carry their dead, whom they must preserve from mutilation, and their wounded, whom they must save. In 1914, at El Herri, an entire French column was thus almost totally annihilated.

Once the French, despite all of this, have reached their objective and have proceeded to set up camp, the assailants lose no time in harassing them by constant fire while they are digging their trenches or erecting their shelters. This accomplished, they post a number of guards to spy over the French while the rest retire to the "douar" to eat, care for their wounded, admire the trophies they have won, and boast to the women of the tribe of the valor of their exploits. For this they do not lack an audience, their women being indeed numerous—real vixens, active, shrewd, and warlike, having themselves followed up the men in battle to cheer them on, offer them drink, rob the enemy dead and wounded, as well as to lend a hand in carrying off their own dead, honor forbidding that they be left to lie on the field. They are constantly on the watch during the conflict to detect any sign of cowardice on the part of one of their men, which, if discovered—an event most rare—makes them use every effort to cover him with ignominy and shame.

At dusk the most stubborn fighters return—they attempt no longer to attack the camps themselves, too well defended by a network of barbed wire, illumi-

nated by torches and well flanked by automatic weapons, but they send in heavy volleys and often kill or wound quite a number of men and animals. Others are bold enough even to creep under the wire and strangle a sentinel or to cut the strap attaching the rifle to the wrist of a soldier asleep in his tent, making away with the weapon despite the violent fusillade loosed after them.

The following days native posts and lookouts are established; these spy unceasingly every movement of the French from all sides, holding themselves ready to take advantage of the slightest inattention on the part of the French, to spring down on their convoys, their labor parties, animals at water, etc. In France one too often hears officers expressing astonishment over the size of the losses: "How can this be possible when you consider that we are fighting with cannon and machine guns against an enemy equipped only with rifles?" they say. They forget that when a moving column has operated during an entire day on an almost impossible terrain, playing the rôle of a "bull tormented by wasps," it is not surprising if at nightfall a goodly number of stings have been received. * * *

NETHERLANDS

NEW DESTROYERS FOR DUTCH NAVY

May, 1925

(From the Dutch press)

Burgerhout's Engineering & Shipbuilding Co. have secured a contract for the construction of two torpedoboat destroyers for the Dutch Navy, which will be sister ships to the destroyer *Evertsen*, previously ordered from the same builders. In addition to this and miscellaneous merchant work, Burgerhout's are engaged on the building of the immense lock gates for the new Ymuiden locks, which are the largest in the world. The amount of work in hand at the present time is sufficient to keep the work going at full capacity for about two years.

NEW ZEALAND

ESTIMATE OF THE MILITARY SITUATION

May 1, 1924

(Prepared by M. I. D.)

Military system.—The defense forces consist of a small permanent force and a territorial force.

The strength of the former is about 500 and the latter must not exceed 30,000. All male inhabitants between the ages of 17 and 55

who are British subjects and have resided at least 6 months in the country are liable for training service in the militia.

Universal training is operative.

Boys are registered as senior cadets at the age of 14. At the age of 18 all pass into the general training section and are either selected for posting to the territorial force or are passed to the reserve. Of the annual class of about 12,000, almost 10,000 are chosen for service. Service with the territorial force ends at the age of 21, after which men are passed to the reserve, remaining on the register until the age of 25.

New Zealand is divided into three commands, Auckland or Northern, Wellington or Central, South Island or Southern. Each command is subdivided into four regimental districts, each of which furnishes one battalion and a proportion of other troops. In a national emergency each regimental district could provide extra battalions up to the limit of man power and equipment available. Regimental districts are subdivided into areas for registration purposes each in charge of an officer and small staff for training and administration.

Organization.—The permanent force is organized into units of the New Zealand Staff Corps, the Royal New Zealand Artillery, the New Zealand Permanent Staff, the New Zealand Army Ordnance Corps, and the New Zealand Army Pay Corps, in such manner as to enable it to carry out administrative and instructional duties for the territorial force and the cadets. Enlistments are for five years with colors and three years with permanent reserve.

The territorial force consists of one division of infantry, three mounted rifle brigades, heavy and antiaircraft batteries, and units for garrisons of defended ports at a peace strength equal to full war establishment of officers, warrant officers, and sergeants, and 50 per cent of the war establishments of other ranks. War establishments are the same as for the British Army.

Each district command furnishes:

- 1 infantry brigade of four battalions,
- 1 mounted rifle brigade of three regiments.
- 1 field artillery brigade of three batteries and one battery of howitzers.
- 1 battery of coast artillery (except in southern district).
- 1 battery of heavy artillery.
- 1 battery of pack artillery.
- 1 depot providing one section transport and supply company for mounted rifle brigade and one-third divisional train.
- 1 depot medical providing one cavalry field ambulance and one ambulance.

On mobilization each command provides ammunition columns, sanitary sections, and mobile veterinary sections in addition.

One hundred and forty-four rifle clubs exist for training the nonmembers of the military and naval forces in musketry. They are affiliated to but do not form a part of the defenses force.

Air Force.—The New Zealand Permanent Air Force has been recently organized as a part of the permanent forces and the New Zealand Air Force has been organized as a part of the territorial forces. (Details unknown). At least 50 planes are in use.

Armament.—Field artillery has 18-pounder quick-firing and 4.5 Howitzer quick-firing. Other guns are 3.7 Howitzer quick-firing; 60-pounder, breech loading; 6-inch breech loading; 6-inch trench mortar; 3-inch trench mortar; 6-inch breech loading, Mark VII; 12-pounder quick-firing.

Munitions.—Received from England. Supply believed to be adequate.

Training.—Training is very inadequate. During 1923–24, the minimum prescribed for the territorial forces was: (1) six consecutive days, (2) six half days, (3) twelve drills.

Musketry courses were included in (2).

For cadets: (1) thirty drills of 1½ hours each, (2) six half days' training.

Course of musketry included in (1) and (2).

Mobilization.—The New Zealand forces, in case of mobilization, would be assembled at the following depots, where equipment and munitions are on hand:

| | | |
|-----------------------|-------|--------------|
| Northern command | ----- | Ngaruawahia. |
| Central command | ----- | Burnham. |
| Southern command | ----- | Trentham |
| General reserve depot | ----- | Do. |

Although railroad communications are good and supplies of equipment and ammunition probably sufficient, mobilization and training would be slow, due especially to the lack of trained noncommissioned officers.

New Zealand's military man power, reckoned as 25 per cent of the male population, is about 160,000. Based on her efforts in the World War, it is believed that the maximum force that could be maintained overseas would not exceed 30,000 and that the first contingent of 10,000 would not be ready for embarkation in less than two months. During the World War New Zealand maintained abroad an infantry division and a cavalry brigade.

Naval.—The light cruiser *Dunedin* has just been exchanged by the British for the *Chatham*. The *Dunedin* is an oil-burning vessel of 4,560 tons, speed 29 knots, and carries an airplane on a revolving platform. She carries six-inch guns.

The only other vessel of the New Zealand Navy is a training ship. £500,000 is the naval appropriation for 1923–24, one item of which

is for the construction of a 5,000-ton oil tank at Devonport. Auckland is the repair base.

Present and future situation.—New Zealand is dependent on the British Navy for defense. Like Australia, New Zealand excludes Asiatics and is anxious that the naval base at Singapore be completed for the greater security of New Zealand.

POLAND

PROPOSED BUDGET FOR NAVAL AVIATION

The Polish program for naval aircraft comprises the following, exclusive of training planes:

- 36 bombing planes.
- 36 fighting planes.
- 54 scouting planes.
- 6 captive balloons.
- 252 reserve motors.

The personnel will consist of 1,700 officers and men.

RUSSIA

SCHEDULED VISIT OF SOVIET FLEET TO COPENHAGEN

April, 1925

Announcement has been recently made in the Danish press, on the strength of news communicated from Berlin, that a Soviet fleet of from six to eight units is to visit Copenhagen in May in the course of that fleet's spring cruise in Baltic waters for general maneuver purposes.

SIAM

NEW GUNBOAT LAUNCHED

A new gunboat for the Siamese Navy, named the *Ratanakosindr*, was launched at the High Walker shipyard of Sir W. G. Armstrong, Whitworth & Co. (Ltd.), Newcastle-on-Tyne, on April 21, having been laid down on December 29, 1924. She is due to be completed during August next. This ship, which is the first naval vessel to be constructed in Great Britain for any foreign government since the war, has the following leading particulars:

Length between perpendiculars, 160 feet; beam, 37 feet; normal draft, 10 feet 9 inches; normal displacement, 1,000 tons. Protection

is afforded by a nickel-steel belt $2\frac{1}{2}$ inches thick amidships, tapering to $1\frac{1}{4}$ inches at bow and stern. Bulkheads of the same material, varying from 1 inch to $2\frac{1}{2}$ inches, have been worked into the structure. The upper deck is armored with 1-inch and $\frac{3}{4}$ -inch high-tensile steel, with an extra thickness of $1\frac{1}{2}$ inches over the magazines. The barbette rings are built up to $2\frac{1}{2}$ inches, nickel-steel, and the funnel base is plated with $\frac{1}{2}$ -inch armor. The conning tower is a structure of cast steel, $4\frac{3}{4}$ inches thick. The propelling plant consists of triple-expansion engines operating twin screws, the cylinders having diameters of $10\frac{1}{2}$ inches, 18 inches, and 30 inches, respectively, with a stroke of 22 inches. At 150 revolutions per minute they are designed to generate 850 indicated horsepower, giving a speed of 12 knots. The boilers, two in number, are of the water-tube three-drum type, burning oil. The working pressure is 225 pounds, the heating surface 2,470 square feet, and the combustion space 270 cubic feet. Stowage is provided for 96 tons of oil fuel. The vessel will be armed with two 6-inch quick-firing guns, singly mounted in gun houses, one forward and one aft. Four 3-inch antiaircraft guns are also provided. The complement of the gunboat is about 52 officers and men.

SWEDEN

NOTES

April, 1925

(From the German press)

Commander Schneidler, former director of the Karlskrona navy yards has been appointed Chief of the Navy Department in place of Admiral Lindberg. Commander Wester has been appointed director of the Karlskrona navy yards and Commander Lübeck, inspector of submarines.

The naval budget amounts to 45,000,000 kroner; of this about 5,000,000 are for maneuvers, 7,500,000 for upkeep of the ships, and 5,500,000 for new constructions.

The chief of the naval staff raised the following points in support of his objections to Sweden's signing of the Geneva protocol:

(1) Only the victorious nations in the World War could derive any great benefit from the Geneva protocol.

(2) The acceptance of the protocol would involve Sweden's abandonment of the neutral policy of the past hundred years.

(3) The signature of the protocol would involve too great responsibilities and too great a risk.

Proposed Swedish disarmament

The Socialist government has recently presented a bill to parliament for a reduction of the army to two-thirds of its present strength. The present peace strength of 2,657 officers and 1,972 men will thereby be reduced to 1,612 officers and 966 men. The period of service will be 140 days for the infantry and 200 days for the cavalry. The navy is not affected by the proposed bill.

Owing to the political situation in Sweden, it is considered doubtful if the bill will receive the requisite number of votes.

UNITED STATES**PASSPORTS FOR OFFICERS GOING ABROAD ON LEAVE**

In the MONTHLY BULLETIN OF INFORMATION for December, 1923, the service was informed that, by an arrangement with the Department of State (Division of Passport Control), special passports would be issued to officers of or above the rank of lieutenant commander in the Navy, or major in the Marine Corps, who are proceeding to foreign countries on leave. The Department of State has recently receded from that position and now holds that in such cases only the ordinary passport will be issued. The ordinary passport requires the payment of the full fee of \$9, plus the fee of \$1 for the administration of the prescribed oath. Officers obtaining these passports will also be required to pay the established fees for visas. Officers applying for such passports must submit with their applications two photographs of themselves taken in civilian clothing.

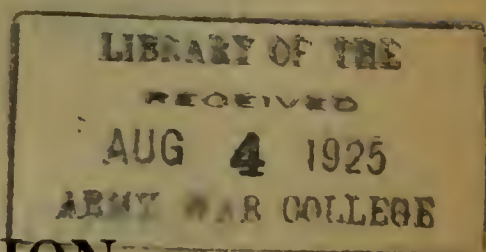
The wives and minor children of officers serving on foreign stations may still, as heretofore, be issued special passports to the countries where their husbands are serving afloat or ashore, only the administration fee of \$1 being charged, with no charge for visas.



CONFIDENTIAL

Division C

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.



MONTHLY INFORMATION BULLETIN

NUMBER 7—1925

JULY, 1925

DISTRIBUTION

In general Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



WASHINGTON:
GOVERNMENT PRINTING OFFICE
1925.

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN
NUMBER 7—1925—JULY, 1925
FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

| | Page |
|--|--------------|
| BRAZIL: | |
| Political conditions | 1 |
| BULGARIA: | |
| Political conditions | 2 |
| CHINA: | |
| Political notes | 4 |
| FRANCE: | |
| Defense against aircraft | 11 |
| New French Sonic depth-finding devices | 21 |
| Naval notes | 22 |
| GERMANY: | |
| The Junker small arms projectile | 23 |
| GREAT BRITAIN: | |
| The aviation plant of Vickers (Ltd.) | 25 |
| Notes on naval bases and stations | 27 |
| Miscellaneous notes | 34 |
| Photograph H. M. S. <i>Effingham</i> | Facing p. 34 |
| Photograph H. M. S. <i>Submarine X-1</i> | Facing p. 35 |
| ITALY: | |
| Naval notes | 37 |
| JAPAN: | |
| Sasebo navy yard and air station | 38 |
| Omnra aviation station | 41 |
| Air station at Oppama | 42 |
| Visit to aircraft factories | 44 |
| Organization of fleet | 51 |
| Miscellaneous notes | 54 |
| NETHERLANDS: | |
| The Koolhoven aviation plant | 64 |
| Activities of Fokker plant | 66 |
| Naval notes | 67 |
| POLAND: | |
| Naval notes | 69 |
| PORTUGAL: | |
| Military organization in the Azores | 70 |
| RUSSIA: | |
| Naval notes | 72 |
| SPAIN: | |
| Naval notes | 73 |
| SWEDEN: | |
| Naval notes | 73 |
| UNITED STATES: | |
| Ratification of Washington treaties | 75 |

The material for the Bulletin is largely derived from service sources, and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

BRAZIL

POLITICAL CONDITIONS

June 1, 1925

The following is what is believed to be at the present time the political situation of Brazil in reference to revolutionary movements, constitutional revision, presidential possibilities, etc.

Revolutionary movements

Rumors and information received from reliable persons who have recently visited the southern part of Brazil insist that the revolutionary movement which started in Sao Paulo City in 1924 and which moved its operations to the southern part of Brazil, near Iguassu Falls, is still active. One reliable person who visited southern Brazil stated to the writer that while there he noted considerable movement of Government troops, and that he noted particularly a troop train which carried over 400 troops.

This despite the fact that the daily press of Rio de Janeiro continues to reiterate by quoted telegrams and letters supposed to have been received from officers of the Government troops that the revolutionaries have fled into Paraguay and beyond the borders of Brazil.

The strict censorship of the press, as well as a state of martial law, continues in most of the States of Brazil and the Federal District.

Constitutional revision

The President of Brazil, in his message of May 3, 1925, read at the opening of the second session of Congress, said in effect:

That the political powers of the country were in part to blame for the unlawful conduct of its citizens, due to their inexperience in making laws for a republican form of government and their enthusiasm extending to every form of liberty to citizens of Brazil to make the republican party popular and prove that it was far superior to a monarchical form of government; that the constitution thus made by these enthusiastic and idealistic gentlemen must now be revised if the union remains intact; that State governments have an entirely free hand; that the union has little control over the action of a State government in matters that particularly affect the union as a whole.

Presidential possibilities

The entire press of Rio de Janeiro is apparently under control of politicians now in power. Due to the strict censorship over that part of the press that might possibly be reactionary, nothing of interest to the public is given out as to the next presidential candidate that is really definite. However, those mentioned to date as being eligible and acceptable by the politicians in power are given below:

Carlos Campos, at present president of the State of Sao Paulo.

Felix Pacheco, at present Minister of Foreign Affairs.

Marshal Setembrino de Carvalho, at present Minister of War.

Washington Luiz, ex-president of the State of Sao Paulo.

It is also reported that the Minister of Viação, Senhor Francisco Sá, will resign in the near future his position in the Cabinet and assume an active part in the coming political campaign for the election of President of Brazil, probably as Vice President on the ticket of Washington Luiz.

What candidate the presidential party will select is not known. With the control of the press of Rio de Janeiro, the lack of interest of the common people, it is believed that the party now in power will select and elect whom they choose with little opposition.

BULGARIA**POLITICAL CONDITIONS**

[From a Sofia press dispatch]

The examination of the accused furnishes positive evidence of the fact that the outrage against King Boris in the Cathedral of Sveta-redilja was to be the signal for the outbreak of the revolution and for the declaration of a soviet republic.

The Bulgarian deputy and general of the reserve, Kosta Georgiew, whose funeral was the scene of the communistic outrage, was murdered by the communists. A few days ago the papers reported that King Boris and certain members of his suite had been the victims of a murderous attempt while motoring. And now we read the news of the horrible crime committed in the Cathedral of Sofia and its more than a hundred victims. There is no doubt that these three outrages are not a casual series of events, but that there is a close connection between them. They mark the beginning of a communistic offensive in Bulgaria and the opening of a great communistic action. It is curious to note the resemblance between the proceedings in Bulgaria and those attempted by the communists in Germany three years ago, when they were immediately suppressed. The first sign of the coming storm in Germany was the infernal ma-

chine that was discovered inside the Siegessäule one Sunday morning. All sorts of suppositions were made as to who was responsible for the attempted outrage. The explosion of the infernal machine would have not only destroyed the Column of Victory but would have also killed or wounded hundreds of innocent people who were taking their Sunday walk. People were still discussing the question as to whether the thing were really an attempt at political murder or a silly practical joke, when the papers brought news of almost simultaneous explosions of infernal machines in the courts of justice of various towns, the first occurring in Leipzig. Then the systematic plan underlying these crimes became clearly evident, and one began to realize that they were the preface to a great communistic offensive action. The police were to be thrown into confusion and its forces were to be separated by simultaneous acts of violence following each other in rapid succession all over the country, and in this way the field was to be cleared for the communistic onslaught. But the energetic measures taken by the Minister of the Interior, Severing, succeeded in crushing out the fire before it had time to spread. This general attempt which the communists had been preparing for a long time to kindle a revolution by means of the "propaganda of action" was the last one made in Germany. They have now transferred their activities to Bulgaria, and the envoys of Moscow are now working along exactly the same lines as they did in Germany. But one can not be quite sure whether Bulgaria will have the same success in her fight against the many-headed Bolshevistic hydra. A bolshevistic action in Bulgaria, even if only temporarily successful, would have much more than a purely local importance. Our correspondents in all the Balkan capitals have long since warned us that Moscow has chosen the Balkan States as the most auspicious battle field for her next offensive. All the Bolshevik attempts against Germany, England, and France have failed, but the half-famished peasants of the Balkans, suffering under exploitation and deprived of political rights, gave promise of good harvest for the doctrines of communism and might be hoped to furnish a new army for the triumph of the world revolution. At least this was what the soviets hoped, and they supposed that they would meet with least resistance in Bulgaria, which has hardly yet recovered from the consequences of the war and where the authority of the state is very feeble. The central organization in Moscow has been sending its agents, as well as considerable sums of money, into Bulgaria for some months past, and a very active propaganda has been carried on especially among the peasantry, but among the proletariat of the towns as well. Now, it seems that Moscow thinks that the harvest is ripe and that the time for action has come. The Bolshevik revolution is to begin in Bulgaria and to spread over the

neighboring states, over Jugoslavia and Rumania. It is perfectly clear, however, that the main object of the Bolshevist rulers does not consist in the realization of abstract ideals of communism but in the attainment of certain very practical and tangible aims, familiar to Russian nationalistic ambition. A strange mixture of party fanaticism and nationalistic tendencies has always been the distinctive feature of Moscow's political intrigues. If Soviet Russia succeeds in spreading communism over the Balkan states, it will win Bessarabia back again as a natural consequence, and by so doing it will come considerably nearer to the ultimate goal of its foreign policy—namely, the occupation of Constantinople and the conquest of the Bosphorus. It is this which gives universal importance to the Bolshevist offensive in the Balkans.

CHINA

POLITICAL NOTES

June, 1925

Feng secures ammunition from Soviet Russia

Feng Yu-hsiang has been buying large quantities of ammunition from Soviet Russia and transporting it to Kalgan through Urga. Feng has obtained as many as 250 motor lorries for the transport of this ammunition. These reports were confirmed by a foreigner who left Urga on April 19. All Europeans wishing to leave then were detained there and refused passport visés owing to the fact that some 4,500 poods of arms and ammunition were being taken to Kalgan for delivery there. This was the first of five similar consignments on their way from Siberia now.

War rumors in north China

Many factors are now at work in China which serve to keep alive rumors of impending outbreaks of civil war. These rumors all point in the direction of a Chang Tso-lin-Feng Yu-hsiang war. About a month ago Feng Yu-hsiang warned all foreign travelers from entering Mongolia on the ground that the country was infested with bandits and the real reason for such warning was that Feng was engaged in bringing arms and ammunitions through the Siberian Railway via Urga to Kalgan by motor trucks.

Chang Tso-lin has been gradually driving his wedge into Feng Yu-hsiang's stronghold by sending troops toward Peking and

Paotingfu and it was decided by Feng and his subordinates to let Chang's troops occupy the Peiyuan and Hsiyuan, two barracks north of Peking, while his own troops will continue to occupy Nanyuan, which is situated a few miles south of Peking. Not being satisfied with this, Chang is said to have demanded, through his lieutenant, Tupan Li Ching-lin, of Chihli, the return of Kalgan to Chihli. As Kalgan is within the jurisdiction of Chihli Province, Feng's subordinates will have to move out of Kalgan or resist by force of arms. As a countermeasure for this demand, Feng's subordinates have requested the Government to appropriate \$10,000,000 for moving their headquarters from Kalgan to Kungpao, one of the cities in Suiyuan containing about 30,000 inhabitants.

The factors responsible for war rumors which are keeping the Chinese people on their nerves are as follows: (a) The desire of Chang Tso-lin to dominate the political affairs of China under the term of "national unification"; (b) difference of opinion and lack of cooperation between Chang and Feng since their success in bringing about the downfall of Wu Pei-fu; (c) the revival of power of Wu Pei-fu in the Yangtze Provinces; (d) the failure of Tuan Chi-jui's policy due to his inability to cope with the situation and lack of foresight in the distribution of the spoils of war; (e) the desire of ex-President Li Yuan-hung's followers to reinstate him and the Kuomintang's attempt to utilize Feng's position and military strength to gain their own ends.

Chang Tso-lin's sole desire is to become dictator, and he is now making use of the old Chiaotung clique to oust the Anfu element, which is at present surrounding Tuan Chi-jui and trying to hold the reins of government.

In the event of war, Chang Tso-lin will have the support of the three eastern Provinces—Chihli, Shantung, Kiangsu—and possibly Anhwei. On Feng's side, he will have about 200,000 men in the capital and in Honan and Shensi led by himself and his lieutenants, Lu Chung-lin, Chang Tze-kiang, Yueh Wei-chun, Sun Yueh, and Cheng Shih-chi, ex-Tupan of Shantung.

Feng Yu-hsiang has been denying that there is any possibility of any war simply because he wishes to develop Mongolia and that Chang Tso-lin and himself are on the best of terms. The fact is that he is afraid that once he engages in war with Chang Tso-lin, Wu Pei-fu will take a hand at his rear in order to wipe out the score of the last Chihli-Fengtien war when Feng turned traitor. In regard to Wu Pei-fu, one can not overestimate his war strength in view of the organizing ability he possesses. He still has Kiangsi, Hupeh, Chekiang, Fukien, Hunan, and Szechuan under his control. It is stated that Chang Tso-lin, even with all his potential strength, is not now in a position to fight, the chief reason being the extremely

low level of his paper currency and the doubtful attitude of a few of his subordinates. In regard to Feng Yu-hsiang, he is credited with being financially unable to conduct any war. Feng's plan is to withdraw and avoid contact with Chang's army until such time as Chang Tso-lin tries to become the head of the Government. Once Chang becomes President of China, it is presumed that his downfall as a powerful militarist has begun. Feng will in the meantime develop his influence and strength in Mongolia, Kansu, Honan, and Shensi until Chang is about to fall and then fight him. Whether Chang Tso-lin or Wu Pei-fu will allow Feng to develop his war machine is a question. According to present indications, it is not likely that there will be any immediate outbreak of war.

(Source, MID)

The antiforeign movement

The antiforeign agitations in China continue, though possibly with less violence, except in Canton. To date, the toll of foreign injuries and deaths is:

Officially confirmed:

Killed—1 British, 1 French, 1 Japanese.

Wounded—7 British, 1 Polish, 1 Swedish.

Reported, but unconfirmed:

Killed—1 Italian, 1 Japanese.

Wounded—3 Japanese.

Canton is now the center of strong antiforeign sentiment. On June 24 quite severe fighting occurred there between Chinese agitators and residents of Shameen, the foreign settlement. The Chinese, headed by a Russian officer, are said to have opened fire, killing one foreigner and wounding three. The fire was returned, and there were greater Chinese casualties. An antiforeign strike is now in order, but from it the Americans have been excepted, which is significant. In fact, with the exception of Fukien Province there has been no evidence of anti-American feeling during the entire series of recent antialien demonstrations. The American consul general in Canton reports on June 22 that American women and children are seeking the protection of Hongkong, that the local authorities are beginning to realize the gravity of the situation and are attempting to exercise some measure of control over future demonstrations, and that he believes the general situation extremely grave but in hand.

The Shanghai negotiations between Chinese representatives and members of the diplomatic corps at Peking with a view to arriving at a mutually satisfactory settlement of the grievances, both foreign

and Chinese, growing out of the Shanghai riot of May 30, have ended in failure. The break-up of this conference was due to the Chinese delegates' unwillingness to confine the negotiations strictly to questions directly arising out of the riot. They insisted that the entire dossier of antiforeign grievances be gone over and adjusted which the foreign representatives were not empowered by their governments to discuss at that particular conference.

As soon as the Shanghai negotiations failed, however, the diplomatic corps in Peking, which has been in communication with the Chinese foreign office since the recent antiforeign demonstrations in China commenced, proposed that, with the approval of the Chinese Government, it would attempt to secure the consent of the respective governments for the calling of a general conference at which the entire question of the position of foreigners in China, including unequal treaties, extraterritoriality, etc., might be discussed. But the Chinese Government has not up to the present definitely announced its approval of this suggestion, because it has been dickering over where such a conference should be held, if held at all. It prefers Shanghai; the diplomatic corps, Peking; and no decision has been reached. It appears certain, however, that such a conference will be held, and probably in Shanghai.

Antiforeign demonstrations in China have been going on now for over three weeks, and although far from unabated the general situation seems to be clarified sufficiently to permit an estimate both of the immediate results of the actual demonstrations and a forecast as to the likely results for the future.

Generally speaking, it appears that those responsible for the recent outbreaks feel that they have obtained the psychological foreign reactions which they desired, and that from now on the part of wisdom will be to prevent for the present more antiforeign demonstrations or injury to foreigners in isolated districts which might impair China's position before the world in regard to the furthering of more far-reaching objectives.

Despite the situation in Canton there appears to be an effort on the part of those behind the scenes, the "master minds," as T. F. Millard calls them, not to permit further antiforeign demonstrations which might lead to consequences that might alienate world sympathy, and thus hinder, rather than help, the larger cause of an eventual satisfactory settlement of many outstanding Chinese foreign questions.

In essence the recent antiforeign demonstrations have been more nationalistic than purely antialien, and it is this that the foreigners must bear in mind in dealing with the problem.

As soon as the calling of a conference to deal generally with the whole situation is announced it is expected that the present anti-foreign feeling will be materially decreased.

Sino-Russo conference.—On May 31, 1925, one year had elapsed since the signing of the so-called preliminary Sino-Soviet treaty which provided for the convening of a formal conference within a month to settle many outstanding questions between the two powers. As yet this conference has never been called.

There are many reasons for the delay, but the most important appear to be the fact that Russia is in no hurry to attend and has for a year brought up one excuse after another as reasons for postponement.

The two things that Russia most wanted before the treaty was signed were China's diplomatic recognition and control of the Chinese Eastern Railway. She has acquired both of these. Consequently, other outstanding questions between herself and China of lesser importance, and in most cases waiting to be readjusted, if fairly, to China's advantage, do not much concern her; and when the conference will be called is yet a matter for conjecture only.

Military situation.—The expected civil war between General Chang and General Feng has not materialized. Chang appears to be slowly extending his power over Chihli Province, while continuing to receive large quantities of munitions from foreign sources.

Feng withdraws where threatened by Chang, while continuing to receive munitions from Russia. It is thought that Feng does not consider himself strong enough to oppose Chang successfully at this time.

A political-military view of the Far East

Government in China.—For many centuries prior to 1911 the Chinese Nation had a suitable form of government under the Manchu Emperors. There are two reasons why this government was able to function comparatively efficiently for so long a period. As is well known, the Chinese social system is built upon the family as a basis, each family is ruled by its head, and heads of families are controlled by another head. During the Manchu period the Emperor was supreme head of the family system throughout China. Also during that period there was a definite Chinese religion, of which the Emperor was the supreme high priest. As the head of the family group and of their religion, it is easy to see that the Emperor and the government which he represented could and did have a very strong influence over all parts of China.

To-day the situation is very different. The Emperor is gone; there is no supreme head to the family groups; there is no religious

leader in Peking. The Chinese people have lost that which held them together in the past and have nothing in its place. The people are accustomed to governing themselves locally. This is done through their family system, but they can see no reason for a centralized government. To them more government simply means more taxes. Under the Manchu Government each Province was ruled by a civil governor, but following the revolution in 1911, when the great military leader Yuan Shi Kai came into power, he placed in charge of each Province a military subordinate who would be loyal to him. This was the beginning of the military system of government which has wrought such havoc in China. Since the death of Yuan Shi Kai the central Government has become weaker and weaker and the power of the various provincial military leaders (tuchuns, as they are called) has become stronger and stronger. To-day the central Government in itself has practically no power. In general, the tuchuns are completely independent: each levies his own taxes to support his large armies, with which he fights his neighbors. From time to time one tuchun, as he becomes more powerful, conquers and rules a number of neighboring Provinces, but sooner or later he is conquered by another tuchun and retires to private life, or goes abroad to spend the money he has taken from the Chinese people.

Present situation.—The Government in Peking to-day makes no pretense of operating in accordance with the Chinese constitution. It is supposed to be a provisional government at the head of which is an executive who is, at present, Tuan Chi Jui. This government has no troops of its own with which to enforce its will. However, to a certain extent it has been supported by the troops of General Chang Tso Lin and General Feng Yu Hsiang in the Provinces which they control. At the same time it is known that General Chang and General Feng are enemies. One of them must fall. General Chang for several years has controlled the three Provinces of Manchuria, and since the civil war of 1924 has extended his power to include Shanghai. His troops now control, in addition to Manchuria, the Provinces of Chihli (including Jehol), Shantung, Kiangsu, Anhwei, and Chekiang. In other words, he has complete control of the foreign commerce in northern China. His opponent, General Feng, has direct control of Chahar, Suiyuan, and the vicinity of Peking, and indirect control through friendly leaders of the Provinces of Honan and Hupeh. General Chang is buying munitions and working his arsenals overtime to make ready for the next civil war. General Feng is placed in a very disadvantageous position from the standpoint of securing munitions. Such arsenals as he has at his disposal are very inadequate. But it is known that he is receiving large quantities of munitions from Russia by motor truck through Urga and Dolonnor. A recent cable brings news that General Feng's

troops in Peking and vicinity are slowly being replaced, without bloodshed, by General Chang's forces, and that General Chang is expected in Peking in the next few days. It would appear that General Chang has definitely decided to take charge of the central government. General Feng is probably acquiescing and withdrawing his troops toward Kalgan, his headquarters, because he does not feel that he is strong enough at this time either in numbers or munitions to combat successfully General Chang.

General Feng is suspected of being prosoviet, and it is quite possible, when he has secured his necessary munitions, that he will so declare himself. A war, should it come between Generals Chang and Feng, would not only be a fight between two military leaders in China, but might well be considered a struggle between Japan and Russia for the control of northern China.

Russo-Japanese Relations.—Along the Chinese Eastern Railway in northern Manchuria the soviet railway officials are extremely arbitrary in their management, apparently trying to force a situation which will justify them in bringing Russian troops into Manchuria in order to make the Chinese Eastern Railway a Russian line in every sense of the word. Certain Chinese officials in Harbin are very outspoken and bold in attacking the soviet management both in speeches and in newspapers. They would hardly do this if they did not feel they were closely supported by the power of Japan.

Russia has done a great deal of propaganda work among the Koreans, and it is believed that this will continue in spite of the recent treaty between Japan and Russia. The strike at Shanghai of some 30,000 Chinese laborers employed in the cotton mills owned by Japanese is another effort at trouble making by the soviets. The Russian ambassador in Peking loses no opportunity to openly attack through public speeches the so-called capitalistic nations, of which Japan is one. Japan is undoubtedly directly or indirectly supporting General Chang, and it is probable that England and France would be glad to see Japan, working through General Chang, succeed in completely ousting soviet influence in China. It is believed that Japan fully realizes that the Soviet Government of Russia is just as dangerous to her, if not more so, as the former Czarist Government. For that reason, it is most vital to Japan to remain on friendly terms with Great Britain and the United States.

Future of China.—There have been many theories advanced for solving the governmental chaos which we now find in China. None of them seem wholly satisfactory. Union by force within China has failed time and time again ever since 1911. A peaceful solution through the formation of a representative government has failed at least twice. Public-spirited men of the type we have in this country are not to be found in China. Foreign intervention on a large scale

might bring about some unity of purpose for the Chinese, but it would be a very costly venture for the foreign governments. It is the general belief that China must work out her own salvation and that it will take many years for this to be accomplished.

FRANCE

DEFENSE AGAINST AIRCRAFT

The following is an extract from a confidential lecture delivered in December, 1924, by Commandant Fontaine, of the Ministry of War, artillery bureau, before a large class of French student officers at the Centre d'Etudes de l'Aéronautique, Versailles, and may be taken to represent the official position of the French Ministry of War as regards antiaircraft defense:

The defense against aircraft is of a dual nature, consisting of observation of aircraft (airplanes and balloons), and secondly, of protection against their observations (direct view, photography) and against their attack (guns, machine guns, bombs, etc.), which makes a most complicated organization, of considerable importance and for which the necessity will make itself more and more felt as progress and development proceed in aeronautics.

A study, even in general outline, of defense against aircraft would take many hours; thus this lecture, on account of the short time which is allowed, can only be a brief outline of the "means" capable of being employed at the present time, and an outline of the organization and of its employment. (The part applying to organization is not translated, as being of interest only in the Army. In the following lecture the letters D. A. A. mean defense against aircraft.)

The means of defense against aircraft

The means actually known and employed can be classed:

1. Active means, because they proceed directly to the attack: Antiaircraft artillery, machine guns.
2. Auxiliary means which assist the action of the active means: Searchlights, sound detectors.
3. Passive means: Protective balloons, camouflage, bomb proofs, and lastly the service of observation and information.

Other means, which will not be spoken of, are being studied; others still remain to be found. The field of these studies and investigations is extremely large, as it is mainly the work of the imagination.

I. ANTIAIRCRAFT ARTILLERY

This consists of two calibers, the 75 and the 105, and four different models: The 75 antiaircraft-gun automobile.

The 75 antiaircraft gun with tractor.

The 75 antiaircraft gun on platform mount.

The 105 antiaircraft gun on platform mount.

The 75 antiaircraft-gun automobile is in the form of a single automobile carriage supplied with a powerful motor (60 horsepower), which makes a very mobile outfit on roads, but unable to travel except over very firm ground. This

material was designed in 1913. The regulations regarding its service are those issued under date of the 20th of July, 1920 (now being revised).

The 75 antiaircraft gun with tractor consists of two carriages: The gun mounted on its trailer and the tractor. Its mobility is a function of the power of the tractor: with present tractor it can move over the ground outside of the roads but can not function in very soft ground. Attached to a tractor of the latest design it could be employed on about any kind of ground. This material was designed in 1917. The regulations regarding its service are those issued under date of January 20, 1919 (now being revised).

The 75 and 105 antiaircraft guns on platform mounts are the field guns of 75 millimeter model of 1897 and the 105 millimeter model of 1913 mounted for antiaircraft fire and for this purpose placed on a platform permitting high angle fire.

These guns are not entirely fixed, but as the demounting and remounting require a certain time and the material is not supplied with its own means of transportation, they are classed as of the type semifixed. The regulations regarding their service are those of October 24, 1918, for the 75 (now being revised) and of October 30, 1918, for the 105 (now being revised).

The antiaircraft guns fire the same projectiles as the corresponding field guns: 75 model 1897 and 105 model 1913, but these projectiles are fitted exclusively with time fuses and not percussion fuses.

On account of the difficulties involved in antiaircraft fire, the antiaircraft fire-control material requires the use of many delicate and complicated instruments (altimeters, range finders, tachyscopes, tachymeters, etc.) and sighting instruments also of a complicated nature. The service of these instruments is difficult and can only be intrusted to a selected personnel most carefully instructed and drilled.

Efficiency

During the war antiaircraft artillery brought down: In 1916, 60 planes; in 1917, 120 planes; in 1918, 220 planes (22 per month).

The number of rounds necessary to bring down a plane was: 11,000 in 1916; 7,500 in 1918; from statistics received from all batteries. Considering only 75 antiaircraft gun automobile and the high explosive projectile model 1900 this number fell at the end of the war to 3,200 rounds. This was an efficiency comparable to that of field artillery (see lecture of Lieutenant Colonel Pagesy on Defense Against Aircraft, delivered at the Centre d'Etudes Tactiques d'Artillerie de Metz).

What would this efficiency be to-day? The difficulties of antiaircraft fire have increased, for if the antiaircraft artillery has remained the same, aviation material has been improved (greater speed, greater maneuverability, greater ceiling).

The difficulty of firing against planes proceeds from the comparability of the speed of the projectile and its objective. In antiaircraft fire a plane flying at 5,000 meters from a gun, at 4,000 meters height, the mean speed of the projectile (less than 500 meters) is scarcely ten times greater than that of the plane (minimum 50 meters). With the same gun and a plane which would fly with a speed comparable to that of the last records (85 meters) it would be only six times greater.

It follows that between the moment when the artilleryman, having finished his sighting, fires his shot and that when the first projectiles arrive at their destination, the plane has traversed an appreciable distance equal to the product Vt of the speed of the plane multiplied by the time of flight of the projectile. In the case of the plane previously spoken of (5,000 meters dis-

tance, 4,000 meters in height), we would have $t=27$ seconds. The product Vt would then be equal to

$$Vt=50 \times 27=1,350 \text{ meters.}$$

The artilleryman must then fire his projectiles at a point in space situated 1,350 meters in front of the plane which he was sighting upon. The determination of this point, based necessarily upon hypotheses regarding the course of the plane (with the actual methods of fire we consider that the plane flies in a straight line, at a constant speed and height) is precarious, and becomes more so the faster the plane is flying. From another point of view, the range of our actual guns, from the fact of their low initial velocity, is limited in height to 5,000 meters for the 75 and 6,000 meters for the 105. One may conclude that against actual fast planes, sufficiently supple to avoid a fixed course and susceptible of flying at high altitudes, antiaircraft artillery will be practically ineffective.

This is exact, but it must be remarked also that the planes have, above everything, missions to fulfill, and that these missions may impose on them fixed courses (missions of observations, of photography), or altitudes which can not be exceeded (regulation of artillery fire, bombardment missions, infantry attack planes), or perfectly regulated flights (group formation flying) which will prevent their defending themselves as they would like and as they should do against the fire of antiaircraft artillery.

One can then affirm still that actually antiaircraft artillery can most usefully be employed.

But to-morrow?

To-morrow the difficulties of firing will be even greater and our material will be less effective, but we must hope that the studies now under way will be successful and that we will be again, at the moment of need, in possession of a material more powerful and more perfected which will give us again many chances of success.

What will be the characteristics of this material?

The future antiaircraft gun will have above everything the smallest possible time of flight, so as to reduce to the minimum the Vt enemy of the efficiency of antiaircraft fire. There will, therefore, follow a very high initial velocity and a long range and a large maximum ordinate of the trajectory. The gun will shoot high and far.

Also it will project in great quantity, in the minimum of time, powerful projectiles of large destructive radius. The realization of this material will be difficult for the conditions imposed, already very difficult by themselves, will be increased by the fact that one must not exceed, for this mobile material, a certain limit of weight. The problem is set, and our engineers, civil and military, are busily engaged in its solution. In order not to remain disarmed during the period of research and manufacture of the new material, which may take a long time, we have turned ourselves toward a waiting solution which consists in improving the existing material. This improvement can be obtained, for the present 75-millimeter gun, by adopting the muzzle brake, which we hope will give us the following increases in initial velocity and vertical range:

| | I. V. | Vertical range |
|----------------------|---------------|----------------|
| | <i>Meters</i> | <i>Meters</i> |
| Present 75..... | 550 | 5,000 |
| Muzzle brake 75..... | 700 | 7,000 |

The study of this adaptation is well under way.

Also in case of necessity we could put into production material for 105-millimeter guns of high power antiaircraft type, of which there exist two models which were designed and constructed by the Schneider Co. in 1917-18. This material possesses, in comparison with the present 105 gun, the following ballistic advantages:

| | I. V. | Vertical range |
|---------------------|--------|----------------|
| | Meters | Meters |
| Actual 105..... | 533 | 6,000 |
| High power 105..... | 700 | 9,000 |

Tactical employment

Antiaircraft artillery fire by day and by night. It fires by day by sighting (direct fire and indirect fire). It fires at night:

1. On planes lighted by searchlights as during the day and by the same methods.

2. On planes "not seen" but "heard" by a special method based on the results given by the sound apparatus and called "method of fire by sound."

The fire of antiaircraft artillery is necessarily attended with a certain amount of uncertainty by reason of its difficulty (fire in the dimensions against extremely small and mobile targets) and the complications which result from the organization of the fire control (apparatus for determining the height and the gun pointing).

One must therefore search for efficiency, in part, by the density of fire.

From another point of view, as soon as the firing is commenced the aviator maneuvers to dodge the shots. It is therefore necessary to get by surprise. Density and surprise being the important factors in efficiency, the fire should only be executed by short and violent bursts.

It is also necessary to seek concentration of fire; in particular, the battery of four guns, the unit of fire, should never be broken up.

In spite of the effect of surprise and density of fire, the antiaircraft fire can still not be effective unless it is done skillfully and at the proper time (work of the battery commander) and if the material whose service is difficult and complicated is handled most correctly (quality of the personnel serving it).

It is therefore of the utmost necessity, during the time of peace, to force to the utmost the instruction of the groups and personnel of the A. A. artillery and all the personnel which will be called to form part of it upon mobilization. This instruction should be completed by schools of fire. These schools of fire against actual planes have been difficult to realize, as they were just as much feared by the artillery personnel firing as by the aviators fired at. They are now regularly maintained at the camps at Tahure and at Cazaux by means of novel procedures which permit firing without danger to the aviator who represents the target, and are:

1. Fire at reduced altitude.
2. Fire offset 180°.
3. Fire at a towed sleeve.

The details of these procedures are given in the "Notes on the Schools of Antiaircraft Fire" of the practical course in antiaircraft defense at Metz.

II. MACHINE GUNS

The plane when it is low and near (less than 1,000 meters height and 1,500 meters distance) is no longer a proper target for antiaircraft artillery because his angular displacement with regard to the gun is too rapid and renders sighting impossible.

A plane flying at 1,000 meters imposes on the gun trainer, to follow him, three turns of the training wheel per second, which is very nearly impossible. From this develops the necessity for firing against this type of target of small caliber guns easily handled in elevation and train and fitted with simple and rapid sighting arrangements.

The weapon actually employed is the Hotchkiss machine gun, on a pivot mount, freed from its elevating screw and supplied with a special pointing device called a "correcteur" (correcteur Cazaux-Cabat for guns on the ground; correcteur Pekrn for guns mounted in planes).

The machine gun fires by day and by night. It fires at night on an "illuminated plane," employing the same methods as for day firing: that is to say, pointing directly at the plane by means of its correcteur, and at a "heard plane" by a "method of sound firing" developed from that employed by antiaircraft artillery.

Tactical employment

"The provisional instructions on the tactical employment of large units" specifies that troops of the various arms should assure their own defense against low flying planes. It is therefore necessary for everyone to be able to utilize machine guns against planes.

The tactical employment of this arm will be defined by the "Manual for Machine Guns Employed Against Planes," which is now in the hands of the printer. As soon as this manual has been issued a War Department order will outline the regulations under which should be undertaken, in all the different branches of the Army, the instruction and training of the troops. While awaiting these documents, consult the lectures on machine guns for defense against aircraft issued in connection with the practical course in D. A. A. at Metz.

Even more than the gun, the efficiency of the machine guns against planes being a function of the density of fire it is necessary to proceed by concentrations of fire. Also the employment of individual machine guns is absolutely prohibited, and the minimum groupment to be employed is the group of four machine guns and if possible of eight.

Heavy machine guns and automatic guns

Against a plane lightly armored the bullet of the present machine gun is ineffective. In addition, the efficiency of the machine gun being considerably reduced beyond 1,000 meters, and the gun not being able to come into action before 1,500 or even 2,000 meters, there exists a critical zone for firing against low-flying planes.

It is sought to remedy these two disadvantages by the utilization of (a) heavy machine gun whose bullet will have a much greater penetration. There should be noted under this head the German machine gun "Tief" of 13 millimeters, whose caliber seems to meet the requirements for a heavy machine gun against planes. (b) An automatic gun of larger caliber (30 to 50 millimeters), with high initial velocity, high rate of fire, and firing an explosive bullet with percussion fuze.

III. SEARCHLIGHTS

The searchlights for D. A. A. are utilized to illuminate the planes so as to make them sufficiently visible so they can be attacked as in broad daylight, either by pursuit planes (night chase), or by antiaircraft artillery or machine guns.

These searchlights are formed from a powerful luminous source (electric arc) placed in the focus of a parabolic mirror, which reflects the rays and forms them in a luminous band which has the form of a cone very slightly open at its base (cone and not cylinder, because the luminous source is not a geometric point). "The range of the searchlight," or distance above which the target is not sufficiently well lighted to be seen, is a function of the power of the searchlight (intensity of the luminous source and the diameter of the mirror), of the state of the atmosphere (in foggy weather the range is zero), of the position of the observer with respect to the target (the range is greater the nearer the observer is to the target), and lastly of the color of the target (the range is greater for a bright object than for a dull-colored one). In weather moderately clear this range varies from 3,000 to 4,500 meters, according to the type of light.

The D. A. A. searchlights are designated by the diameter of their mirrors, which in France is 1 meter 20 and 1 meter 50.

They take the names of 120 searchlight or 150.

The searchlight and the electric generating group which furnishes the current for feeding the luminous source constitute the photo-electric crew. This crew is made up of one or two automobile trucks which can travel at speeds varying according to the type from 10 to 15 kilometers per hour.

The D. A. A. searchlights are formed into searchlight companies, which each comprise a variable number of "sections of four searchlights," according to whether they are "army type" (six sections of 120 searchlights) or "territorial type" (variable number of sections of 150 searchlights). The regulations now in force are the "provisional regulations for the handling and employment of D. A. A. searchlights," dated July 26, 1918.

Tactical employment

The direct effect of the searchlight as regards the handicap placed on the aviator by glare is disputed. It is therefore desirable to obtain an illumination of the target, with a view to attacking it by guns, machine guns, or pursuit planes. In order that this attack may be possible, there must be a minimum illumination of two minutes for firing and eight minutes for pursuit.

It follows that the employment of a single searchlight, which can produce an illumination of about only one minute, is inefficient and must be absolutely rejected.

Searchlights should therefore only be employed in minimum groups of two sections for firing and from four to six sections according to the types (four sections for the 150, six for the 120) for night pursuit. It is generally advantageous to employ the D. A. A. searchlights whenever possible in the most compact grouping obtainable.

Searchlights are distributed on the field at distances from each other varying from $2\frac{1}{2}$ to 4 kilometers according to their caliber.

As soon as a plane is announced above the apparatus, by the noise of its motor, a certain number of searchlights called "guiding lights" (due to their being fitted with special means for directing their beams on the plane by a system of pointing derived from that used by the antiaircraft artillery when

firing from indications of sound apparatus) attempt to catch the plane in their beams.

As soon as one of them has succeeded, the three other lights of the same section (the section comprises the unit) put their beams, with that of the guiding light, on the plane.

From this time on the plane belongs to the section which is illuminating it and the other lights cease their search. This section keeps the plane in the beams of its four lights, follows it in all its evolutions, and keeps on it to the limiting range of the lights. It then passes to the adjacent section which in its turn assumes the illumination under the same conditions.

The plane is thus illuminated alternatively by four or eight lights (eight at the time of passing from one section to the next) during the whole of its passage above the zone covered by the searchlights (12 kilometers for a company of 150 lights of four sections disposed in a square), which gives a mean time of illumination of four to five minutes (6 kilometers by 9 for a half company (three sections) of 120 disposed in a rectangle), which gives a mean time of illumination of two to three minutes.

Night pursuit

The plane caught in the beams of light is blinded by them and can not see what is going on below him. He is an easy prey for the pursuing enemy who attacks him from below and who sees without being seen. The pursuing plane who cruises in proximity to the zone of the lights is warned of the arrival of the enemy plane in the zone by the working of the beams of light which cross and fix themselves on a point in space which they then slowly follow. He speeds toward this point and starts his attack in all security.

Night pursuit, employed with great success by the British at the end of the war, was only perfected by us very shortly before the armistice.

It necessitates, to be successful, the coordination of the work of searchlights and fighting planes, skilled in their duties and having worked together for a long time. It is therefore necessary for antiaircraft artillery to push to the utmost during peace time the technical instruction of the searchlight personnel of the D. A. A.

As to the joint training of the lights and planes for night pursuit, this is accomplished every year by the night pursuit exercises which have been held regularly since the autumn of 1920 in the vicinity of Metz.

Luminous background

The night pursuit necessitates a large number of lights difficult to obtain (costly material, specialized personnel). Attempts have been made to replace searchlight illumination by a "luminous background," which was placed at a fixed height above the ground, and on which the enemy plane, instead of being illuminated, would be silhouetted in black to the pursuit plane flying above it.

The advantages are apparent of an installation whose first cost, although high, when once installed would require a very limited personnel. From another point of view, this background, which might cover very great areas of ground (industrial regions), could in case of lack of pursuit planes serve to hide from the enemy the objects he sought to bomb (luminous camouflage). The construction of a luminous background is difficult and the experiments made to date have not **been** at all conclusive.

IV. LISTENING

Guns, machine guns, and searchlights are aimed at night, as we have stated, by utilizing a method called "method of firing by sound," based on the fact that the position of a plane flying invisible in space and only evident by the sound of its motor can be located in azimuth, angle of elevation, and altitude by the procedure called "by listening," aided by special apparatus called "sound-listening devices."

At night the sighting is accomplished by the ear, and the sound-listening devices are to this organ what glasses are to the eyes in the daytime.

Listening in azimuth, which can be done without any special device, and is then called "listening with the ear alone," is based on the fact that, due to the distance between the ears, a sound emitted from a sonorous source not situated in the median plane of the head impresses itself on the ears successively and with sufficient difference in time for the hearer to become aware of the side from which the sound emanates.

We see, then, that the listener by turning his head alternately from right to left and the reverse and by progressively diminishing the oscillations of his head, can arrive at position such that the median plane passes through the source of sound, it is therefore possible for him to determine the direction (azimuth of this source).

A trained listener can thus determine the azimuth of a sonorous source with an approximation of 20 to 30 millimetres. It goes without saying that the listener with his ear alone is not capable of determining the angle of site, since the two ears are at the same height. The listening for sight angle is done by listening devices which by an ingenious mechanism give the listener a "sense of the side" of the angle of site. In addition to the property of allowing the determination of the angle of site, the listening devices have the property of "intensifying" and "isolating" the sound. It must be understood from this that this apparatus permits not only to hear the sounds more distinctively than with the ear alone, but also to hear them with greater clearness the nearer the source of sound is to the axis of the apparatus.

In summation the listening devices permit locating a plane before the sound is perceptible to the ear (8 to 10 kilometers) and to follow that plane and that plane only, even though he belongs to a group (isolating sound) and to measure at any instant its azimuth, its angle of site, and even its altitude.

The sound-listening apparatus actually in use is of two kinds:

The "Paraboloids" of the type Baillaud.

The "Sitemeters" and "Telesitemeters" of the type Perrin. They have a sensitiveness and accuracy about equal, but the last mentioned are demountable and lighter and are more easily transported.

Employment

The sound-listening apparatus is placed near the guns and lights for which they are to work and to whom they send continuously by voice or telephone the values of the azimuth and sight angle.

The values are all converted at the guns and lights into azimuths and sight angles for firing for the guns and azimuths and sight angles for illumination for the searchlights. To avoid "dead time" due to transmission an attempt has been made to have a direct connection from the guns and lights to the sound-listening devices by the pointer gear (telepointage) and even the complete control of the former by the latter (distant control). This solution has not been satisfactorily solved as yet.

As regards the employment of sound listening with the guns, it appears from the German reports that the night antiaircraft firing of the French was much feared at the end of the war by the enemy bombing planes. Nevertheless the value of night firing on sound has not been checked in peace time. Night firing schools (target practices) have not been attempted as yet. This check will soon be made, however, as the arrangements for holding night firing are about to be completed.

With the searchlights, the sound listening has given remarkable results. It has enabled us to eliminate almost entirely the hunting for plane by "sweeping the sky" with the bands of light. The light is pointed at the plane, are not struck, and the light is not turned "on" until the aim is considered correct.

Experience has shown, in the course of the night pursuit exercises, that in the great majority of cases, with well-trained crews, when the light is turned on the plane is caught in the beam or just off the edge of the beam.

Unfortunately, the efficiency of the listening, at least with present apparatus, is a function of the noise made by the motors. This will certainly grow less as the planes make less noise (use of silencers, flying with motor throttled down, or with motor stopped—gliding). This has not been overlooked and researches are under way to increase the sensitiveness of the apparatus.

V. PROTECTIVE AVIATION

There exist "aerial lanes" for night flying just as there are steamship lanes. They are imposed by the difficulties of this form of flying and based on the employment of "points of departure."

This idea accepted, it was natural, to oppose the night operations of enemy planes, to search for obstacles to place in their way on their lanes. The first obstacles of this nature were the Italian protective balloons employed in 1917 in the defense of Venice, and the idea was taken and applied to defense in France. The British, on their side, utilized for the defense of London some "aerial wires" held up by captive balloons. The protective balloons now used in France, and which have a volume of about 200 cubic meters, only oppose to the planes as an obstacle their retaining cable, a steel cable of 3 to 4 millimeters in diameter and of 700 kilograms tractive resistance.

They reach mean heights of 2,000 meters for the single balloons (balloons N) and 3,500 meters for "tandem balloons" (1 balloon N and 1 balloon N. N.). They are placed either in line at distances from each other ranging from 200 to 500 meters or in groups of 5.

If a plane encounters a cable, it may touch it either with its propeller which is practically certain to be broken or with one of its wings, which produces a violent unbalancing (accident at Villaeoublay in 1923).

The chances of success are given by a comparison of the wing span of the plane with the spacing of the cables. A plane of 25 meters wing span, flying through a line of balloons spaced at 250 meters, has a probability of being caught of 1 in 10. Thus there is a real chance, which was proved during the war, where there were very few cases of planes who knowingly flew through a line of balloons. The plane, to avoid the balloons, tries to go over them and "gains ceiling."

The balloons can be used in two ways:

1. As a menace, without trying for real effect, simply to make the enemy planes fly high and interfere with their mission, especially if this is bombardment.

2. In seeking for real effect, by placing balloons scattered along possible flying lanes, far from expected points, so that the planes ignorant of their existence will not be taking any precautions to avoid them.

The protective balloons are handled by companies of a variable number of sections, each section of 10-balloon units, each unit comprising 1 cable and 2 balloons, of which 1 is an N balloon and 1 a N. N. balloon.

The regulations now in effect regarding service of the protective balloons are those dated March 7, 1921.

VI. CAMOUFLAGE

Camouflage, which has for its object protection against being seen by the enemy either from the ground or the air, belongs to the "general preparation of the area," and under this heading is of interest to all arms of the service who must secure for themselves the camouflaging of the ground they occupy and of their own material. Besides, the general service regulations now being prepared by the general inspector of engineers will give all necessary information on the methods to be employed. Nevertheless, important camouflaging, as of general headquarters, railway stations, pieces of heavy artillery of long range, etc., which can not be done by the individual services, will be undertaken by the engineers, who will also be instructed to furnish the combatant branches for their own proper camouflaging, all necessary material, and eventually the necessary specialized personnel. The check on the efficiency of the camouflaging will be undertaken by the air service on demand from those interested and within the limits permitted as regards available flying personnel and on order by the commanding general.

Let us note as important camouflage:

Smoke camouflage, which serves to hide certain important points of limited extent (railroad stations, bridges, etc.) or the points of departure of aerial routes.

The smoke is produced by two kinds of apparatus:

1. The Berger engine, giving hot smoke (type B3 of 4.5 kilograms, time of emission 2½ minutes, and the "Navy" type of 40 kilograms, time of emission 10 minutes).

2. The Verdier engine, giving cold smoke (a single type of 40 kilogrammes, time of emission 15 minutes).

For the protection of Paris during the war smoke camouflage was the function of the Marne and Seine and of the Oise and the Seine.

Direct camouflage of objects by transformation of their appearance.

During the war, camouflage of the Grand Canal at Versailles by modification of the form of the cross.

False objectives (false Paris at Herblay).

VII. PROTECTION AGAINST AERIAL BOMBING

It is the duty of the D. A. A. to seek for and perfect all the means of individual protection against the effects of bombing (shelters, trenches, etc.), and to it belongs also the duty of advising the supreme command and the civil authorities on the putting into operation of these means.

VIII. OBSERVATION AND WARNING

It is the D. A. A. which by its rôle is best qualified to be informed on all the movements of the enemy's air forces.

It is therefore its duty to inform all those who should be informed of the air activities of the enemy; the commander who may draw certain inferences

from this information as to the enemy intentions: friendly air forces who must know for its own defense and the organization of its missions, and also those who may be the object of the enemy's offensive operations (by gunfire, machine gunnery, and bombing), and to whom it would serve nothing to have at their disposition protective means if they were not warned in time of the moment when they would be needed.

This information is collected by "observation posts" (searching with glasses by day, listening at night) which are spread along the front of the forces and behind the front, including the seacoast, so that no plane can penetrate our territory without being seen or heard, and also differentiated as to type.

This information is centralized by groups of observation posts in "information centers" who "broadcast" the information to those concerned (commanding officer, air commander, pursuit aviation, etc.).

The D. A. A. information is transmitted by radio (special service) and by telephone (special circuit as far as possible, and general circuit by priority from D. A. A.). It is necessary to insist on the rôle of watcher that the D. A. A. is called upon to play in certain cases as regards our own air force. It is for it to notify the pursuit plane that is crossing the enemy, who he does not see and who might escape him or catch him unawares; it is for it to notify our pursuit planes, who have just taken the air, the direction of enemy planes they desire to pursue.

This kind of information is signaled either by guns fired in the direction of the enemy under conditions agreed upon in advance with our own air force or by means of signals placed on the ground.

It is only necessary to add that the studies and experiments relative to antiaircraft defense are most carefully followed by the technical establishment of our artillery (ordnance corps) and those of aviation and by the "board on antiaircraft defense" which holds its sessions at Metz.

As to the instruction of officers, starting at the artillery school, it is continued at the practical course in defense against aircraft at Metz and also at the range-finder school at Toulon.

FRANCE

NEW FRENCH SONIC DEPTH-FINDING DEVICES

May, 1925

[From a Consular Report]

Information has been received that the French Government has just adopted for vessels of its navy the new sonic depth-finding device of the system Langevin-Chilowsky.

The apparatus in question depends for its operation upon the action of certain silent marine wave vibrations, called ultrasounds, which, on account of their small wave length, have a peculiar property of being emitted in a controllable direction.

The apparatus itself consists of the following parts:

1. An ultrasonic projector.
2. An electric sending and receiving device composed by the joining of a special wave-sending device and of a special amplifier.

3. A special automatic device called "optical analyser," which coordinates the various operations of the device and furnishes an indication of the depth upon a graduated scale visible to the eye of the observer.

It appears that the wave-sounding brush of this apparatus directs the ultrasonic waves in such an exact way that no submarine obstacle outside of its narrow range will have the slightest effect upon its effectiveness. Moreover, this brush, which has an opening of several degrees, gives a faithful representation of the form of the sea bottom falling within the range of its direction. Without going further into the technical details of the matter, it may be stated that the manufacturers of the device in question claim that it will be of great use in hydrographic work. It is claimed that the construction of submarine maps will become, by the use of this apparatus, infinitely more simple, rapid, and inexpensive than was the case with all previous apparatus known to navigation. It is also claimed that the location of wrecks will be greatly facilitated.

This apparatus is manufactured by the "Société de Condensation et d'Applications Mécaniques," of 10, Place Edouard VII, Paris.

FRANCE

NAVAL NOTES

June, 1925

The 1,400-ton torpedo destroyer *Typhon* was launched at Bordeaux May 22, 1925.

The 1,400-ton destroyer *Mistral* was launched June 6, 1925, at Le Havre.

The super destroyer *Leopard* at St. Nazaire was visited. The ship was about 90 per cent completed. The details obtained are as follows:

Battery.—Five 5.1-inch guns and one antiaircraft gun, all on the center line. Three guns on forecastle, single gun and twin guns higher on double mount.

Speed.—Designed for 36 knots, but expect to make 37. Twin-screw turbines, four boilers, 50,000 horsepower.

Complement.—10 officers, 180 men.

Torpedoes.—2 triple tubes on center line.

Displacement.—2,500 tons (designed), nearly 3,000 tons.

Mast.—1 tripod; 3 funnels.

Length.—121 meters, width 11 meters.

There are six vessels of this type under construction, four at St. Nazaire and two at Lorient. Three of the four super destroyers

building at St. Nazaire were seen. The other two, besides the *Leopard*, look to be 80 per cent and 90 per cent completed, respectively.

Crew space on these destroyers is forward, officers' quarters aft. Ship has separate galleys for each mess. Forward and aft on deck, a panel with levels for simultaneous flooding of all magazines was noticed. The prospective commander of the *Leopard* complained about the forward funnel being too near the bridge. He complained also of work progressing slowly, but there were many workmen on the *Leopard*. On another super destroyer a portion of the crew had already been received.

At Lorient there is an 8,000-ton cruiser under construction and a 10,000-ton cruiser planned. Little work has been done on the 8,000-ton cruiser and none on the 10,000-ton ship. The escorting officer was very indefinite about any details of the cruisers and gave the impression that he did not know much about them and seemed pessimistic about early progress on account of lack of funds.

French squadron to visit Naples in June

It is announced that a French squadron will visit Naples on June 15. The squadron will consist of the two battleships *Paris* and *France* and a squadron of destroyers and will be under the command of the ex-Minister of the Marine, Vice Admiral Dumesnil, now commander of the French naval forces in the Mediterranean.

The French division will remain three days and will be received by an Italian division commanded by Vice Admiral Simonetti, consisting of the battleships *Dante* and *Carour* and a squadron of destroyers.

GERMANY

THE JUNKER SMALL-ARMS PROJECTILE

At a recent test the firing was from a machine gun instead of with rifles, as was done at the previous test, to demonstrate the effectiveness of a new projectile invented by Herr Junker. The same results were obtained as at the previous test. This time the plates, however, were of tougher material.

The chief interest in this invention is its applicability to projectiles of larger caliber.

The inventor claimed for his projectile an unusual quality in so far as the attack of armor was concerned. He claimed also to have discovered an incendiary effect heretofore unknown.

In all there were between 400 and 500 rounds fired; all from a standard German light machine gun. The range was approximately 100 meters, and the target a plate of steel about four-tenths of an inch in thickness and said to be a plate of special alloy. Specifically, there were two targets side by side, each target composed of two of the plates in question. The two plates in each target were separated by two upright wooden stakes in such manner as to separate the plates by about 2 inches. In the space between the two plates of each target the inventor placed a small tin container filled with what appeared to be gasoline. He also placed a bottle of gasoline in the rear of each target.

Fire was directed against both targets. Upon impact of the projectile against the plate a luminous flash of perhaps 15 inches in diameter was noted. Where the projectile missed the plate and impacted on the ground or in rear in the sand butt no flash was noticeable. After about 30 shots the gasoline and wooden uprights which separated the plates were burning. Firing was continued until about half the ammunition was used. At this point firing was stopped in order to extinguish the flames and for the purpose of examining the plates. The front plates were found to be full of holes—in almost every case the bullet had penetrated the first plate and in many cases had penetrated both plates. It was noted also that screens placed on both sides of the targets were full of small splinters of the bullet and of the plate.

After the first inspection the remainder of the ammunition was fired with no new incidents of firing. A second inspection of the plates showed merely a greater number of holes.

During the firing perhaps a dozen or 15 prematures were noted. By this is meant the bullet exploded at from 5 to 25 meters in front of the muzzle of the machine gun. These prematures were explained by Herr Junker as due to the presence of an older form of his projectile. He claimed that the incendiary mixture carried in his latest model bullet was such that prematures of the type witnessed could not occur.

Herr Junker claims for his invention certain electrical phenomena. This claim is not understood. Herr Junker has an idea that his bullet was the locus of sufficient electric charge as practically to cause the electrocution of any man struck by it.

A comparison of American armor-piercing small-arms bullets of this type with the Junker bullet can be arrived at only through competitive test. However, the sections of the plate attacked by the Junker bullet will after analysis throw some light upon the armor-piercing qualities claimed for his projectile by Herr Junker.

The addition of an incendiary function would be a simple affair. If the using service want a bullet of this type, it should not be hard to furnish. In 1908 to 1910 a number of experiments were made with a view to developing a small-arms bullet which upon impact with the ground would give a flash or a puff of smoke. From a point of view of visibility, either by day or night, the bullets were quite equal to those developed by Herr Junker. In igniting gasoline Herr Junker has added nothing to the art. Even ordinary armor-piercing small-arms projectiles without special incendiary functions when fired in the same quantity as Herr Junker's projectiles were fired would start a fire where gasoline was present.

GREAT BRITAIN

THE AVIATION PLANT OF VICKERS (LTD.)

June, 1925

This plant is located at Brooklands, near Weybridge, about 18 miles southwest of London. It was started just prior to the beginning of the war and has been enlarged from time to time since that date. The buildings are modern in construction and have modern equipment. For purposes of flight test, the area inclosed by the Brooklands automobile race track is used as an aerodrome, and this aerodrome is very accessible to the factory.

The plant at the present time has approximately 1,100 employees, about one-third of which are girls. The girls are employed largely in fabric sewing, doping, and the assembly of ribs. The designing staff appeared to be rather small and the company has produced very few successful types since the Vickers' *Vimy* in the latter stages of the war. The plant at present is engaged principally in the manufacture of Vickers' "Virginias" and in the overhaul of "Vernons" and "Vimys." At the time of the inspection, there were 16 "Virginias" on the assembly floor in various stages of assembly. The *Virginia* is a twin-engine bombing type developed from the *Vimy*. It was originally equipped with Napier Lion engines, but these are now being replaced by the Rolls-Royce "Condor." The following characteristics of the *Virginia* have been ascertained:

Length, 50 feet 7 inches.

Span, 86 feet 6 inches.

Wing area, 2,666 square feet.

Total weight, 16,660 pounds.

Weight empty, 8,277 pounds.

NOTE.—Weight empty is for the Napier Lion installation and is considerably heavier with the "Condor" installation.

Endurance, 13 hours, at 85 miles an hour.

Speed at ground level, 100 statute miles per hour.

Climb to 5,000 feet, $17\frac{1}{4}$ minutes.

Crew, 2 pilots, 1 bomber, 1 machine gunner.

Armament: 1 flexible machine gun in nose; 1 flexible machine gun in gunner's cockpit aft.

Bomb equipment, 9 112-pound bombs.

The *Vernon* is a troop carrier, equipped with two Napier Lion engines, and is designed to carry 12 soldiers with full marching equipment. The following characteristics have been ascertained:

Length, 43 feet 4 inches.

Span, 68 feet.

Wing area, 1,329 feet.

Weight fully loaded, 12,500 pounds.

Weight empty, 7,850 pounds.

Speed, 101 statute miles per hour, at 6,500 feet.

Endurance, $2\frac{1}{2}$ hours, full power.

Climb, 6,000 feet in 14.6 minutes.

Service ceiling, 10,600 feet.

Crew, 1 pilot, 1 wireless operator.

Armament, none.

The "Vimy" is an obsolete type and its performance characteristics are not considered of interest. It is understood that only a sufficient number of "Vimys" are being rebuilt to maintain the squadrons until "Virginias" have been produced for replacement.

Last year Vickers produced a Napier Lion engined bomber similar in general to the Fairey *Fawn*. This bomber was called the *Vixen*, but it was not considered to be as good as the *Fawn* and was not put in production. It is understood that about six "Vixens" were produced.

The company is now engaged in constructing a two-seater reconnaissance type called the "Vespa." The fuselage of this airplane was seen on the assembly floor. It is equipped with a "Jupiter" engine and will carry one fixed and one flexible machine gun. The fixed gun is mounted outside the fuselage and is so placed that it can be tended by the observer in case of jams. The forward structure of the fuselage is built of mild steel tubing and welding is used where members are not under tension. The after section of the fuselage is built of duralumin tubing. The upper wing is close down on the top of the fuselage, and the pilot looks over the wing. The fuselage is rather fine and the lower wing is considerably below the bottom of the fuselage. There is an unusual amount of stagger between wings. The position of the wings has required an unusually long spider-leg like looking landing chassis, and the present chassis does not look particularly strong. It was stated that a speed of 140 miles per hour ground level was expected and a service ceiling of not less than 25,000 feet.

| Name | Naval classification | Depth of water in approaches to harbor | Neap tide rise | Remarks about anchorage and docks | Fixed defenses: number and caliber of guns | Troops in vicinity | Aircraft defense | Repairs, character that can be made | Dry docks, number of and dimensions of largest | Fuel-oil storage, amount if known | Communication | | Remarks |
|--|---|--|-----------------|--|---|--|---|---|---|--|--|---|--|
| | | | | | | | | | | | Radio stations | Cable stations | |
| 1. Gibraltar | Primary naval base. (Base for Mediterranean fleet.) | Sufficient for largest sized ship. | 2½ feet. | Moderate anchorage space and good deep-water docks. | 14, 9.2-inch; 11, 6-in.; and numerous small guns. | 3,500 (4 battalions infantry; 3 companies garrison artillery). | None; no aviation facilities. | Extensive naval repair shops for all sorts of repair work. | 3, naval; largest 850 feet long, 95 feet wide, 35½ feet deep. | Large quantities of naval oil; quantities not known; 9,300 tons of commercial oil. | 2 | 12 cables to all parts of world. | |
| 2. Malta | Primary naval base. (Main base for Mediterranean station.) | 10 to 10 fathoms. | No tides. | Good anchorage area; plentiful docking space. | Well defended by 5 forts; at least 8-inch guns. | 2 regiments of infantry; also engineers, etc. | Yes; large seaplane station. | Extensive naval repair yard; base for Mediterranean fleet. | 8, naval docks; largest 538 feet long, 94 feet wide, 35½ feet deep; new floating dock coming. (See remarks.) | Large naval fuel oil storage; about 70,000 tons usually on hand; new tanks built. | 2 | do. | The new floating dry dock will be 900 feet long and have a lifting power of 43,000 tons. |
| 3. Halifax, Nova Scotia | Light cruiser naval base. (Atlantic base for Canadian Navy.) | Least depth 36 feet. | 5½ feet. | Large, well-protected deep-water harbor; excellent commercial deep-water docks. | At least 5, 9.2-inch; 11, 6-inch; also smaller guns. | 520 of permanent Canadian forces; also coast defense militia. | Small Canadian seaplane station. | Good commercial repair plants; naval dockyard closed. | 1 commercial only; 507 feet long, 80½ feet wide, 23 feet deep. | Commercial storage only; about 220,000 barrels. | 1 large commercial. | 3 cables. | Most important port on Canadian mainland open all year. |
| 4. Bermuda | Light cruiser naval base. (Main base for North American and West Indies station.) | Least depth 29 feet. | 2½ feet. | Poor anchorage for capital ships; small berthing facilities. | 1, 9.2-inch; 2, 6-inch; 2, 4-inch. | 1,200 (infantry, garrison artillery, and engineers). | None. | Small naval repair yard. | 1 floating naval dry dock, 545 feet long, 92½ feet wide, 33 feet deep; 17,500 tons power. | 2 commercial tanks, total 70,000 barrels; 2 naval tanks, total about 110,000 barrels. | 2 | 2 cables. | |
| 5. Simonstown, South Africa | Light cruiser naval base. (Main base for Africa station.) | Least depth 8 fathoms. | 3½ feet. | Good anchorage; small inclosed tidal basin for berthing. | 2 batteries of about 6-7-inch (estimated). | Small number of South African coast artillery. | do. | Large naval repair yard. | 1 naval dry dock; 756 feet long, 95 feet wide, 36 feet 5 inches deep. | 75,000 barrels naval fuel oil; commercial fuel oil storage at Cape Town. | 1 small station at navy yard; large commercial at Cape Town. | Cables at Cape Town only. | |
| 6. Trincomalee, Ceylon | Light cruiser naval station. (Main base for East Indies station.) | Least depth 11 fathoms. | 1½ feet. | Excellent deep-water anchorage; no docks. | Not known definitely; some old 9.2-inch guns reported there. | Not known. | do. | Small at present, but will be increased when base is fully established. | None. | None at present; tanks holding 76,000 tons being constructed. | No information. | None at last report. | This station has only recently been established, but it is intended to make it a large station. Naval ships are repaired at Colombo now. |
| 7. Hongkong | Light cruiser naval base. (Main base for China station.) | East channel 36 feet, west channel 24 feet. | 6 feet. | Good deep-water anchorage but few docks; large program of port improvement going on. | 7, 12-inch; 2, 10-inch; 8, 9.2-inch; 5, 6-inch; 1 five-inch torpedo; also smaller guns. | 2,500 (infantry, coast artillery, engineers). | None; facilities good. | Small naval repair yard; large commercial repair plants. | 1 naval dry dock and 1 commercial; largest at present 787 feet long, 81½ feet wide, 34½ feet deep. (See remarks.) | Naval, 30,000 tons; commercial, 38,000 tons. | 1 naval and 1 commercial. | 6 cables to all parts of world. | A large commercial dry dock is now under construction; length 1,200 feet, breadth 120 feet at sill; date of completion 1925 (estimated). |
| 8. Sydney, Australia | Light cruiser naval base. (Main base Australian Navy.) | 80 feet. | 3 feet. | Very large deep-water anchorage area and extensive deep-water docks. | 13, 9.2-inch; 22, 6-inch. (Latest information 1908.) | 22 batteries coast artillery, 8 companies engineers; Australian army. | None at present, but seaplane base is to be established. | Naval dockyards and several large commercial repair plants. | 2 naval and 5 commercial dry docks; largest 850 feet long, 83 feet wide, 28 feet deep. | Commercial only; 15,000 tons. | do. | 4 cables to all parts of world. | |
| 9. Auckland, New Zealand | Light cruiser naval base. (Main base New Zealand Navy.) | 31½ feet. | 5½ feet. | Large anchorage area from 6 to 12 fathoms; good docking space. | 4, 8-inch; 8, 6-inch. (Latest information 1908.) | 1 infantry brigade, 1 cavalry brigade, 1 field artillery brigade, New Zealand territorial. | Not known; it is intended to establish aviation station here. | Subsidized commercial repair plant under admiralty. | 2 dry docks; largest 566 feet long, 80 feet wide, 33 feet deep. | None at present, but commercial storage proposed; this storage will be used by navy also. | 2 | 2 cables to all parts of world. | |
| 10. Esquimalt, British Columbia | Light cruiser naval base. (Pacific base for Canadian Navy.) | Least depth 49 feet. | 5 to 5 feet. | Small protected harbor; small docks only. | 2, 9.2-inch (estimated); 2, 6-inch. | 200 (coast artillery and engineers, Canadian). | None; conditions for seaplane base good. | Small repair plant for Canadian Navy; also commercial repairs. | 2 Government dry docks; largest, nearly completed, 1,150 feet long, 125 feet wide, 40 feet deep. | No naval; commercial storage only; amount not known. | 1 at Victoria, close by. | 1 cable at Victoria across the straits. | |
| 11. Bombay, India | Small naval station. (Base for Indian Marine.) | 36 feet. | 10¼ feet. | Large anchorage area; excellent wet docks for berthing. | Probably one or two batteries of 9.2-inch. | 2 batteries of coast artillery and also tanks and infantry. | None. | Government dockyard, now closed; large commercial repair plant. | 11 dry docks; largest 908 feet long, 100 feet wide, 36½ feet deep. | Commercial only; 225,000 barrels. | 1 | 4 cables. | |
| 12. Kingston, Jamaica | Naval fuel station. | do. | Zero. | Good landlocked harbor; steamship docks with 4½ to 6 fathoms alongside. | 5, 9.2-inch; and a few smaller, all of old type. | 1,400 (infantry, coast artillery, and engineers). | do. | Small commercial repair shops. | None. | British Navy has two 55,000-barrel tanks. | 1 commercial. | 3 cables. | |
| 13. Sierra Leone, British West Africa | do. | do. | 8 feet. | Large harbor with 5 to 18 fathoms of water; small docks, only; improvements under way. | 3 batteries, 1 of 9.2-inch, other 2 smaller. | 200 (coast artillery and engineers). | None; facilities not good. | Small commercial repair shops. | do. | British Navy has two 2,500,000-gallon tanks, another under way. | do. | 2 cables. | |
| 14. Port Said, Egypt | do. | 35 feet. | ½ foot. | No good protected anchorage; numerous mooring basins with 28 feet of water. | None. | British Army camp near by. | 2 Royal air-force stations near. | Good commercial repair plant. | 1 small; length 295 feet long, 61 feet wide, 18 feet deep. | British Navy, 16,000 tons; commercial, 49,000 tons. | None. | 1 cable. | |
| 15. Port Sudan, Anglo-Egyptian Sudan | do. | 18 fathoms. | None. | Very small anchorage for large ships; 1 large dock with 28 feet of water. | do. | None. | None; Royal air-force landing field here. | Small commercial repair plant. | None. | British Navy has fuel tanks under construction; commercial 7,000 tons. | 1 station with 2 sets. | 5 cables, 3 relays. | Good railroad to Nile Valley. |
| 16. Aden | do. | 32 feet. | 4½ feet. | Good anchorage for large ships; no docks for large ships. | Well fortified; thought to contain some 9.2-inch guns. | 3,500 (infantry, coast artillery, engineers). | Royal air-force station (small). | do. | 1,750-ton floating dock only. | British Navy storage 25,000 tons; commercial 16,000 tons. | 1, navy. | 13 cables to all parts of the world. | |
| 17. Colombo, Ceylon | do. | 32 feet; two entrances. | Zero. | Artificial harbor area 1 square mile; depth 26 to 36 feet; no docks. | 4, 9.2-inch; 2, 6-inch; and other smaller; all old guns. | Less than 1,000 (700 native infantry British coast artillery and engineers). | None. | Large commercial repair plant. | 1; 725 feet long, 83½ feet wide, 32 feet deep. | British Navy 50,000 barrels; commercial 225,000 barrels. | 1; another (navy) 60 miles away. | 4 cables. | It is thought that naval ships on East Indies station get large repairs here. |
| 18. Rangoon, Burmah | do. | 17 feet on bar. | 14½ feet. | Poor harbor for large ships; difficult channel; docks. | 3 forts with old 6-inch guns. | 1 native regiment infantry; 1 battalion field artillery, and 1 battalion infantry (British). | do. | do. | None. | British Navy constructing tanks to hold 306,000 tons of fuel oil; commercial storage 6,500,000 gallons. | 1; another large one building. | None. | Second largest naval fuel storage in Dominions under construction. |
| 19. Singapore, Malay Peninsula | do. | Sufficient for largest ships. | Springs 9 feet. | Small protected anchorage area and large unprotected area; good docks, 25-40 feet of water. | 3, 9.2-inch; 2, 6-inch. (Date of information 1907.) | 450 (infantry, coast artillery, and engineers; also native militia). | do. | do. | 5 dry docks; largest 873 feet long, 100 feet wide, 34 feet deep; large floating dock coming. | British Navy has storage for 850,000 tons (completed) in 45, 10,000-ton tanks; expects to have a total of 90,000 tons; remainder below ground. | 2; 1 navy, 1 commercial. | 15 cables. | Will eventually be made an important naval base, but now is only a fuel station. |
| 20. Port Stanley, Falkland Islands | do. | 26 feet. | 5½ feet. | Small protected harbor; room for 1 large ship; small docks. | None. | None. | do. | Very small commercial repair plant. | None. | British Navy has fuel-oil storage; amount not known. | 1. | 1 cable which is not used. | |
| 21. Port Castries, Island of St. Lucia | Naval anchorage. | 6½ fathoms. | 2 feet. | Very small landlocked harbor; room for 2 large ships; 1 dock with 27 feet alongside. | 2 abandoned old-type 6-inch guns; once was strongly fortified. | do. | do. | None. | do. | No fuel oil. (See remarks.) | 1. | 4 cables. | Was once strongly fortified naval coaling station; now abandoned by navy and defenses removed. |
| 22. St. Helena, Island of | do. | Open roadstead; no channel; 10-18 fathoms. | do. | No harbor, only an open roadstead; heavy rollers; no docks. | 4, 6-inch guns reported in 1904; probably not in commission. | 1 company Royal artillery (temporary station). | None; no facilities. | do. | do. | No fuel oil; small amount of coal. | No information. | Cable relay station. | Was once naval coaling and supply station; now practically abandoned by navy. |
| 23. Port Louis, Island of Mauritius | do. | 30 feet. | 2 feet. | Small protected harbor with 29 feet; also open deep-water anchorage; small docks. | 2 forts; no information on number and size of guns. | 124 (coast artillery and engineers). | None. | Nominal repairs, commercial. | 1; 430 feet long, 52 feet wide, 20 feet deep. | No fuel oil; coal only. | 1. | 4 cables (3 British, 1 French). | Was once a base for navy; now practically abandoned by navy. |
| 24. King George Sound, West Australia | do. | 3 entrances with depths of 5½, 15, and 18 fathoms, respectively. | do. | Very large protected anchorage; undeveloped; no docks. | None. | None (some at Albany). | do. | None. | None. | None. | None. | None. | Is an excellent protected fleet anchorage. |
| 25. Wei Hai Wei, China | Naval anchorage and sanitarium. | 8 fathoms. | 5½ feet. | Large protected anchorage for medium-draft ships; 1 small dock. | do. | Small infantry detachment. | do. | Minor engineers, repairs only. | do. | do. | do. | 1 cable. | |
| 26. Suez, Egypt | Naval fuel station. | 37 feet to Suez Canal; 27 feet to Port of Suez. | do. | Good anchorage in 5 to 10 fathoms, protected except from south. Small wet basins with 20-30 feet of water. | do. | None at Suez; army camp at Cairo, 60 miles away. | Royal air-force station at Ismailia, 40 miles away. | Ordinary repairs. | 1 commercial, 410 feet long, 73 feet wide, 20 feet deep. | British Navy has appropriated money for tanks at Suez; commercial storage 25,000 tons. (See remarks.) | do. | 5 cables to all parts of the world. | Money appropriated in 1924 was not large; not known whether tanks are building or not. |

Vickers uses steel tubing for fuselage construction in most of its designs, and the question of the protection of this tubing against corrosion was taken up. It was stated that the tubing was first slightly pickled, then tinned in an electrolytic bath, then submerged in a bath of tallow. The outside of the tubing was then cleaned off and after fabrication all the outside surface was covered with enamel paint. No metal is used for either spars or ribs of wings.

General conclusions

Vickers (Ltd.) have an airplane plant well constructed and well situated, with a probable capacity under war conditions of one large airplane per day or a commensurate number of smaller planes. The plant has not received many orders in the past three years and is not believed to have any orders on hand other than one now being built of approximately 24 "Virginias." The weakness of the organization appears to be in the designing staff.

GREAT BRITAIN

NOTES ON NAVAL BASES AND STATIONS

June, 1925

Rosyth naval base

[From Consular Reports]

The town planning committee submitted to Dunfermline town council requesting the consent of the local authority to the erection of the first 50 workmen's houses at the naval base near Primrose Farm, tentative plans being submitted providing for the erection of between 250 and 300 additional houses in this part of the Garden City and naval base.

Work at the naval base proper will probably be increased during the summer and fall because of the plans to dock and overhaul several of the large battleships and cruisers of the British Navy. It is claimed that the dry dock facilities at Rosyth are larger and more complete than any in Great Britain and that Rosyth is the only dry-dock base with docks large enough to safely dock the largest and heaviest ships of the navy. At present the flagship *Revenge* is in dry dock, the first of the big naval ships to be docked and overhauled, and to be followed by a series of other battleships during the summer and fall.

The Dutch training ship *Willemsoord*, attached to the Dutch Navy, visited Leith and the Forth at Rosyth during the week end.

The French dispatch vessel *Ville D'ys* is expected next week.

The British battle cruisers and battleships *Hood*, *Resolution*, *Ramilies*, and *Royal Sovereign* have arrived at Invergordon, along with a number of submarines and other craft.

The fifth destroyer flotilla have arrived at Port Edgar and Rosyth.

The summer promises more activity at the naval base than for some time, with assurances that the base is to be regarded as one of the most important in the empire, particularly as a dock yard for the largest battleships of the navy.

[From the British press]

Establishment of the new station in east England

A large aerodrome, involving an expenditure of half a million pounds and an establishment of 500 men of the air force, is, it was reported to Colchester town council yesterday, proposed to be built at Colchester. It was reported that, while plans were only provisional, negotiations were well advanced, and all the ministry at the moment required was the assurance of the council that they would sympathetically consider the formal application when it came.

Colchester is located 51¾ miles northeast of London and is not far from the Stour Estuary, upon which is located the destroyer and submarine base, Harwich.

The establishment of this new station is covered in air-force estimates 1925-26 on page 37, subhead No. 23.

Haulbowline Dockyard

The efforts of the Irish Free State Government to let Haulbowline Dockyard as a going concern have so far proved futile, and the future of the establishment is still in doubt. A very large proportion of those who were employed in the yard when it was in full swing as a British naval dockyard are now among the workless, while many of the younger and more adventurous of the men are seeking their fortunes overseas. For Haulbowline, therefore, the change of Government has had very serious effects.

It would appear that the Government has not yet relinquished hope of letting the dockyard, and with that idea £10,000 has been appropriated for the maintenance of the buildings and plant during

the coming year. It is considered that the best way of letting the yard would be to get a ship-repairing firm to take it over, and according to our Haulbowline correspondent, the question of rent would not be allowed to stand as a bar in the way if some firm could be found willing to work it so as to effect a decrease in the vast amount of unemployment prevailing in the district, due almost altogether to the closing of the dockyard as a naval establishment. Failing to get a ship-repairing firm to take over the yard, a less satisfactory way of disposing of it would be considered—that is, to let it to a ship-breaking firm.

Colombo as airship base?

[From Ceylon press]

Air ministry official selecting sites—Possibility of Ceylon-Australia route—Interview with director of airship developments

Group Capt. P. F. M. Fellowes, director of airship developments under the air ministry, and First Lieut. S. Nixon, an airship pilot who has had considerable experience in laying out airship bases, are now in Colombo for the purpose of selecting sites for a possible airship station. While Captain Fellowes was in India advising the Government on the selection of a suitable repair base and temporary terminus for the Burney airship program, he was asked by the Indian air board to select sites at the various capital cities—Karachi, Bombay, Delhi, Calcutta, and Madras. Captain Fellowes commented to a Times of Ceylon representative that he thought the Indian air board were very farsighted in doing so, in preparation for the moment when air ship development would take place in India.

The director of airship development thought he would take the opportunity, on his journey home, of looking for possible sites for an airship base in Colombo, as he anticipates that it is quite probable that Colombo will form one of the links on the future imperial route to Australia. If it were found that the conditions for flying airships over the Karachi-Calcutta route were not satisfactory, owing to the hot sun and dust storms, the chances, said Captain Fellowes, of the Colombo route to Australia being selected would be much improved. This was a matter, however, which could only be decided by experience in the future, as there was no experience at present on which the decision could be based. Another factor which might have some bearing on Colombo being selected as a base for the airship service to Australia, in the event of the Karachi-Calcutta route proving unsuitable, was the fact that an airship

carrying a commercial load must fly low, and therefore should not depart from routes which follow the sea or sea-level plains. If an airship had to valve gas, which was necessary if she were to ascend, she would have to refill, which cost much and added considerably to the expenses of the journey. Another fact which had to be remembered was that an airship travelling between two places, say 2,500 miles apart, which was an economical range, would frequently vary its route between the two places by 1,000 miles off the direct line, in order to take advantage of favoring winds. The question of flying over Ceylon, with its mountainous interior, did not arise, the cost of the ascent being against this. It was in no way impossible for an airship to do so, in spite of the bad air pockets which naturally exist over a mountainous area with a varied surface in a tropical country. Surfaces of paddy fields and of trees had very different refractive effects as regards heat, and adjacent air currents had greatly differing vertical velocities. If Colombo were chosen as an airship base, however, the route would probably follow the coast line.

Captain Fellowes was then asked if he had discovered a suitable site in Colombo, but could not make a statement on that subject. The minimum requirement for the site of an airship base, he said, was an area 900 yards by 900 yards, with surroundings free from obstruction. In selecting a site various advantages and disadvantages had to be considered. The site might require a great deal of costly preparation, and, to balance this disadvantage, it might be very near to the center of Colombo. Another site might be more cheaply and easily prepared, while, on the other hand, being farther from the center of Colombo. The local Government would have the ultimate decision as to the selection of a site, and when the moment came for them to decide the results of the present investigations would be placed before them.

THE BURNEY PROGRAM

In detailing the Burney airship scheme, Captain Fellowes said that Sir Samuel Hoare, the Secretary of State for Air, had informed him that he intended to advance the establishment of imperial commercial routes and services with both airships and airplanes to India and possibly beyond India before his five years' term of office expired. The British Government had decided on the following experimental program:

1. An extensive program of research, including full-scale structure tests, is to be carried out. Before the airships intended for the England-India route were built the complete structure of the designed airships would be built and tested to destruction. This would enable the designer to be quite sure of the strength of the actual airships, by

practical experience, as opposed to theoretical calculations. The tests would be much more thorough than had ever been tried out on any bridge structure, and an airship was really a flying bridge. Another part of the research program was a flight or flights with the airships *R33* or *R36* from England to Egypt and back to test the effect of tropical conditions.

THE PROPOSED AIRSHIPS

2. The construction of two 5,000,000 cubic feet airships for the Government, one to be built by Government and one by private contract. The dimensions and particulars of the proposed airships were: Capacity, 5,000,000 cubic feet; air displacement, 150 tons; horsepower, 4,200; length, 720 feet; diameter, 130 feet; height, 140 feet; passenger accommodation, 100; crew, 50; economic range, 2,700 miles; extreme range, 20,000–25,000 miles; full speed, 70 to 80 miles per hour; date of commencement of construction, about August, 1925; time of journey from England to Egypt, two to two and one-half days; from England to India, four and one-half to five and one-half days. The British Government were taking a bold step in designing an airship of twice the capacity of the biggest ship hitherto successfully built. The reason for the big jump, however, said Captain Fellowes, was the economic impossibility of attempting the England-India route with anything smaller. It was possible that the first experimental types would have to be modified before a completely successful commercial or service ship could be designed, but, naturally, it was hoped that this would not prove necessary.

3. The third stage was the establishment of an experimental air route from England to India, which meant the establishment of an intermediate base (a mooring mast) in Egypt and of a repair base and temporary terminns (mooring mast, shed, etc.) in India.

THE FIRST JOURNEY TO INDIA

4. The fourth stage mapped out in the program was the trial and testing of these two airships on the England-India route and of the facilities at their bases during 1927.

5. The final stage, said Captain Fellowes, would be the consideration of the measures necessary for continuing and expanding the development of airship services and imperial routes in cooperation with the Dominions and dependencies interested. Cooperation with Australia and New Zealand was particularly hoped for in the ultimate extension of the England-India route.

Captain Fellowes ascribed the great potential progress in the development of airship services to the invention of the mooring mast, which apparatus was perfected by Major Scott, who flew the At-

lantic in *R34*. The apparatus enables the airship to swing round the mooring mast, pitch or roll, in accordance with the action of the wind. These masts constituted an easy method of establishing a base, dispensing with sheds which were costly in money, time, and convenience. These masts were now in considerable use in America, where from six to eight had been set up, said Captain Fellowes, and there was one in England. The Americans had actually had one mounted on the stern of a ship, which moored an airship successfully. The excellent meteorological services now existing and amplified as they would be would do much to further airship development, and there was every chance that high winds, cyclonic disturbances, far from proving deterrents to airships, would be coopted to assist them on their voyages.

Air Vice Marshal Sir Geoffrey Salmond, K. C. M. G., C. B., D. S. O., air member of the air council for supply and research, is the officer finally responsible for the technical and operational success of the airship program. Air Vice Marshal Sir Sefton Brancker, K. C. B., A. F. C., the director of civil aviation, is now in India in connection with the scheme, and, in collaboration with Captain Fellowes, placed his services at the disposal of the Indian Government in preparation for the time when the testing of the two airships will be carried out.

Singapore

The estimated expenditures connected with the proposed naval base announced in January, 1925, are as follows:

| | |
|--|--------------|
| Works connected with all departments, viz, wharves, basins, railways, roads, dredging, berth for floating dock, etc----- | £5, 100, 000 |
| Graving dock----- | 1, 000, 000 |
| Offices, dwellings, and other buildings----- | 420, 000 |
| Workshops, storehouses, and magazines----- | 1, 780, 000 |
| Contingencies----- | 1, 200, 000 |
| Machinery----- | 1, 000, 000 |
| Total----- | 10, 500, 000 |

It is to be noted that these figures do not cover estimates for an air base nor for the increased defenses which will become necessary. No funds are at present available. Plans and specifications drawn up prior to the advent of the labor government in Great Britain were ordered halted and some small accumulation of building materials and road-making machinery were sold off.

The site of the proposed naval base has been chosen and purchased. It is on the north side of the Island of Singapore to the eastward of the completed causeway joining that island with the mainland of the Malay Peninsula. It extends roughly 6 miles to the eastward front-

ing on Selat Tebrau, which separates Singapore from the mainland and to a depth of from three-fourths of a mile to 2 miles. The west end is thoroughly protected by a solid causeway through which the only entrance is a narrow lock on the northern end about wide enough to permit the passage of destroyers or submarines. The eastern entrance to the site will be amply protected by defenses installed on the numerous islands at the seaward end. The extent and depth of the water area is shown on the inclosed chart.

The only work which has been so far carried out is the clearing of some 15 or 20 acres of land.

The site was bought after condemnation and appraisal by the local government at a cost of approximately \$600 an acre at a total cost of 1,250,000 Straits dollars. The local government then made it a present to the Crown. Some dissatisfaction was expressed by the former owners of the land and suit brought for reappraisal but the judgment was confirmed for the sum mentioned above.

The land is rolling in character with hills up to about 200 feet in height interspersed with mangrove swamps at water level and is at present in rubber trees of poor quality and miscellaneous woods. By its nature there is no available landing place for land planes unless a considerable area is leveled off.

Oil reserve at Singapore

A large oil reserve under the control of the British Navy is partially established. The present plan is to have in reserve a total of 900,000 tons of oil, presumably all fuel oil, in aboveground and underground storage. Of this amount storage is already provided aboveground for 650,000 tons in 65 fabricated steel tanks of a capacity of 10,000 tons each, or 3,000,000 imperial gallons. The remainder of the storage is to be underground in tanks of reinforced concrete, the dimensions of which and the location not as yet established.

Of the 65 tanks at present installed, 40 are on the west side of the railroad at Mandi Station, while 25 are along the Alexandria Road west of the town of Singapore. These tanks are 116 by 45 feet and were fabricated in England, being erected on the ground by native workmen under supervision of British foremen. The reinforced-concrete containers will probably be built locally under local contractors.

A 12-inch pipe line connects with the Admiralty Wharf, King's Dock, the Alexandria Road tank station.

When the labor party decided to discontinue all work on the proposed naval base all work but that connected with these tanks was stopped. They were erected under an appropriation other than that of new construction, probably admiralty estimates.

It is considered probable that the two tank stations will be interconnected and later connected with docks at the naval base, but no authentic information is available.

GREAT BRITAIN

MISCELLANEOUS NOTES

June, 1925

Australian naval contribution

As has been previously reported, the construction in England at the expense of the Australian Government includes two 10,000-ton cruisers and two submarines. This new construction is in accordance with the program adopted by the Commonwealth Government last year and involves an expenditure of £1,000,000 for equipment for five years, exclusive of the cost of these new cruisers and submarines, and is additional to maintenance and administrative costs of the navy, which for this year are about £2,354,000.

The effective strength of the Royal Australian Navy at the present time embraces 4 cruisers, *Melbourne* class, 5,800 tons (3 in commission); 1 flotilla leader in commission; 11 destroyers—namely, 5 S class and 6 Australian river class (3 in commission); 3 sloops (2 in commission); 1 depot and repair ship, and 1 surveying ship (both in commission). The commonwealth government maintains a Royal naval college at Jervis Bay, a naval depot at Flinders, where there are 1,200 men in training, a naval training ship, H. M. A. S. *Tingira*, and a naval depot ship, H. M. A. S. *Penguin*. The commonwealth also maintains the Garden Island dockyards.

Cruisers

Last week the cruiser *Canterbury* left Devonport for Chatham, where she is to be taken in hand for an extensive refit, estimated to run into £81,469. Launched in 1915, the cost of the *Canterbury* was a little over £300,000, so that it is now proposed to spend rather more than a quarter of her original price in extending her lease of life. As she is so close upon what has been laid down as the effective age limit of her class, the question may reasonably be asked as to whether this expenditure is really justified. The *Canterbury* is an oil-burning vessel, of 29 knots. She is, therefore, as fast as any



H. M. LIGHT CRUISER "EFFINGHAM"

Details of this latest addition to the British Navy appeared in the March, 1925, Bulletin. It is reported that "the Effingham" will replace the "Chatham" as flagship of the East Indies Squadron



H. M. SUBMARINE "X-1." STERN VIEW ON TRIALS
Other views of this submarine appeared in the April, 1925, Bulletin

cruiser we yet have in commission, although under seagoing conditions she would not keep full power pace with the very much larger vessels of the *Hawkins* group.

Seeing that our position in cruiser strength is rapidly becoming one of serious relative shortage, we think the principle of making the most of what we have got is a very sound one. A hard-and-fast age limit is not always a reliable criterion of a warship's value, particularly in the matter of speed. On more than one occasion during the war vessels which would have been due for withdrawal from the effective list under peace conditions gave steaming performances better than anything they had accomplished throughout their career.

The oldest cruiser remaining in service to-day is the *Weymouth*, launched in 1910. For the past two years she has been making regular voyages to the Far East, carrying relief and relieved crews, and during this time she has probably done about 120,000 miles of steaming. She is now to be taken in hand for refit. A perfectly new vessel would demand dockyard attention after two years of continuous voyaging. It is true she is a coal-burning ship and that her speed is only 25 knots, so that her war-time value would not be very high. But as long as she is capable of useful employment she sets free for more important work a more up-to-date vessel, and this is the point which justifies the policy of the very large expenditure now being incurred in the reconditioning of the older cruisers.

The *Canterbury* was relieved last January in the second cruiser squadron and has since been in reserve at Devonport.

Aircraft carriers

After seven months' absence in the Mediterranean, the aircraft carrier *Hermes* arrived at Portsmouth, May 30. It is announced that she is to be recommissioned for further service in the Mediterranean.

Political condition in Straits Settlements

All opinions consulted agreed that there was little or no political unrest in Malaya nor is there apparent discontent among the natives. The only indications which might be termed signs of unrest are the mild demands by the educated natives for some voice on local boards and participation in the lower government offices.

There was unanimous consent that affairs in the Philippines and the treatment of the Filipinos by the United States had no bearing on conditions in Malaya in regard to discontent or unrest. In fact the impression was gained that the British officials had no interest in the Philippines nor in the present controversy regarding independence.

The two main foci from which the British fear unrest are India and China, and through China from Russia. The Chinese have many secret societies but these are dealt with by the police by deportation of leaders when they become troublesome. The one sinister Chinese society is that which calls itself the Kuo Min Tang or Chinese nationalist party, until recently headed by Sun Yat Sen. The spread of its communistic tendencies to natives is much feared by the British. Very recently two Russians, purporting to be dealers in coal, passed through Singapore. They did sell some coal but the authorities are convinced that they were propagandists. The same two men were refused permission to land in Java.

Another society upon which close watch is being maintained, but about which little information is available, is one called the Union of Eastern Seamen, closely allied with the Third International, the I. W. W., and the Hongkong Seamen's Guild. This society has headquarters in Hamburg. At the time of the seamen's strike in Hongkong, considerable apprehension was felt that the strike might spread to the union. In case this had happened, it was felt that all shipping east of Suez would have been completely tied up.

It is understood that up to a short time ago a great deal of Japanese surveillance was apparent. This has ceased, but it is expected that it will be promptly renewed as soon as work recommences and that a considerable number of spies will be employed in the guise of Chinese coolies.

The feeling between the Dutch and British here seems to be less than cordial. The impression received is that all British in this region are distinctly of the belief that Java should never have been returned to the Dutch.

Civil air service between Egypt and India

The following is quoted from House of Commons debates, June 11, 1925:

Sir S. Hoare (secretary for air), replying to Sir F. Sykes (C. Sheffield), said that his Majesty's Government had approved in principle the institution of a civil air service between Egypt and India. This would replace the service at present carried out by the Royal Air Force between Egypt and Iraq at fortnightly intervals for strategic and training purposes. A concrete scheme for a service to be operated weekly each way between Kantara and Karachi was

accordingly under consideration, and civil aviation undertakings had been invited to submit early proposals for such a service.

I regard the development of this important link in our imperial communications (Sir S. Hoare added) as a matter of urgency, and whilst it is impossible as yet to give an exact date for its inauguration, I am most anxious that it should, if possible, come into operation during the winter of 1925-26.

In reply to Captain Benn (L., Leith), Sir S. Hoare said a subsidy would be necessary, but certain savings would be effective on the defense side.

ITALY

NAVAL NOTES

June, 1925

Launching of "Quintino Sella"

The Officine e Cantieri Napoletani C. and T. T. Pattison on April 25, 1925, at their yards at Granili, a suburb of Naples, launched the new Italian torpedo-boat destroyer *Quintino Sella*. The vessel is now being put into commission at the Naples arsenal basin.

The new vessel is an oil burner of 1,200 tons displacement. Its turbines develop 36,000 horsepower, and the contract called for a speed of 35 knots per hour. It measures 278½ feet over all in length and 28 feet beam. The armament consists of three 120-millimeter guns, four torpedo tubes, and two antiaircraft rapid-fire guns. The vessel is built on the type of torpedo boats built in England during the war. The antiaircraft guns mentioned were built in England.

The vessel will be commanded by Capitano Corvette Angelo Ginocchietti, who is now the chief of staff of the admiral commanding the Naples district.

Aviation

The Italian press announces the following prospective propaganda flights:

a. May 24, the Italian dirigibles *Esperia* (former *Bodensee*) and *N. 1* will fly from Rome to Barcellona, crossing the Mediterranean, where they will land and be received by the King of Spain. From there they will proceed to Toulon, France, and then return to Rome. Hangar accommodation is available at Toulon for housing the ships overnight. The correspondents of various Italian and foreign papers will be invited for this flight.

b. Three Italian *BR 1* day bombardment planes, equipped with 700 horsepower Fiat engines, will fly in the next few days from Turin to Paris and then to Brussels. Commander Ferrarin will have command of the squadron, and on arriving at Brussels he will be decorated by the King of Belgium. The planes will then return to Turin.

It has been ascertained that the following aircraft will participate in the Italian fleet maneuvers during the coming summer:

LANDPLANES

At least two bombardment squadrons Ca³ type = 8 planes.

SEAPLANES

Two squadrons S. 16 type = 18 seaplanes.

One squadron M. 7 type = 9 seaplanes.

One squadron M. 18 type = 9 seaplanes.

One squadron S. 16 ter type = 9 seaplanes.

AIRSHIPS

Two large dirigibles.

Two small dirigibles.

Four M. 18 seaplanes will be embarked on battleships, and six M. 7 seaplanes will be embarked on scout cruisers.

The above aircraft will be used for scouting and during disembarkment operations.

JAPAN

SASEBO NAVY YARD AND AIR STATION

May, 1925

Recently Vice Admiral S. Hyakutake ceremoniously relieved Admiral Prince Fushimi in command.

Coal storage.—A very large pile of coal briquettes was located on the shore line on the west side of the harbor just to the southward of the group of three dry docks. A smaller pile of coal briquettes was located directly opposite on the eastern shore line.

Dry docks.—Five in all, in two groups. A group of three dry docks is at the western end of the navy yard, a group of two dry docks is separated from the first group by the building ways is located just to the southward of the fitting-out basin. The length of the longest dry dock is about 850 feet, the next in size is about 750 feet in length.

Crane.—A 250-ton fixed crane is located on the northern sea wall of the fitting-out basin.

Apprentice school.—To the west of the barracks building is a civilian mechanics apprentice school, capacity 300 men. These civilian apprentices are given a three-year course, at the end of which the men are taken into the navy yard shops.

Port office.—The port office is situated on a pier to the eastward of the fitting-out basin.

Rifle range.—At the east end of the navy yard is a well-laid-out rifle range.

Mine depot and magazines.—A mine depot and magazine is situated on the shore to the south of the rifle range.

Torpedo-testing plant.—This is situated on a point on the shore south of the mine depot and magazines. Two or three above water torpedo tubes were seen at this plant.

Oil storage.—About eight oil tanks are situated on the west side of the harbor.

Anchorage buoys.—Three rows of fleet anchorage buoys are laid down in the navy yard harbor.

Notes.—Seven thousand workmen are employed at the yard.

Destroyer *No. 19* is on the building ways; hull is nearly completed.

Destroyer *No. 17* appears very nearly completed.

Only one dry dock was in use, and this contained four submarines.

A number of second-class destroyers were in the process of getting a complete overhaul.

The shops at the navy yard were working at about 60 per cent capacity.

It is not permitted to see the submarines at the navy yard nor the aircraft repair shop.

The air station is situated on a small peninsula about 3 miles by boat from Sasebo Navy Yard. The air station consists mostly of made ground by leveling the hills and filling in the shore line.

Built.—Apparently completed in 1922.

Personnel.—Officer pilots, 10; noncommissioned officer pilots, 20; ground enlisted men, 300.

Buildings:

Officers' quarters and administration building.—Two-story wooden building.

Barracks.—Two-story wooden building, capacity about 300.

Storehouse.—Large building of steel framework and concrete, two stories high; capacity, 24 *F-5* hulls on ground floor, a large number of land type observation fuselages and wings can be stored on the second floor. A track leads into the center of this storehouse and a car equipped with turntable truck permits the use of this building as a hangar. It is estimated that this storehouse would house 40 land-type observation planes set up.

Engine overhaul shop.—Wooden frame building 30 by 40 feet.

Hospital.—A large wooden building used as an isolation hospital for the Sasebo Navy Yard.

Photographic laboratory.—A wooden building about 20 by 12 feet.

Issuing storeroom.—Several small buildings containing navigation, gunnery, and engine parts.

Blacksmith and carpenter shop.—Small building contains the blacksmith and carpenter shop.

Radio.—Small building at end of sea wall with antenna suspended from adjacent watch tower, apparently only used for communication with Sasebo Navy Yard.

Meteorological station.—Small building in rear of barracks building on top of hill.

Wash rooms and kitchen.—Wooden building in rear of barracks building.

Pigeon loft.—Small wooden building near barracks.

Hangars.—Two of steel and brick, capacity 10 Hansa type sea-planes each; one steel frame and iron corrugated double hanger, capacity 8 F-5 set up. Ground between hangers and sea wall and between ramps is covered with granite.

Ramps.—Three. One in front of each hangar, made of concrete. These ramps are fairly steep and are built over rocks.

Landing field.—A large athletic field between hangars and barracks buildings is the only place where planes can now land.

Piers.—Two small piers for small boats.

Signal tower.—Small steel framework tower one end row of hangars.

Fuel tanks.—None seen at station.

Planes.—In operating condition:

| | |
|--|----|
| F-5 flying boats..... | 6 |
| Hansa seaplanes..... | 10 |
| Yokosuka type twin float seaplane..... | 12 |
| (Rigged for light bombing.) | |

In store:

| | |
|--|----|
| F-5 flying boats, new. Japanese made..... | 10 |
| Mitsubishi No. 1 pursuit plane..... | 10 |
| (The 10 Mitsubishi belong to Omure Station.) | |

Crane.—Large stationary crane on sea wall used for hoisting out F-5 boats.

Listening station.—Located near barracks, a small aircraft listening station with a listening device of the dish or parabolic type.

Lighter than air.—None.

NOTES.—In general Sasebo Naval Air Station is a small unit suitable for coastal patrol only. Due to the hilly nature of the land extension of this station can be made only at great expense. The station at present can be considered of small military importance. There are no fabric or dope shops at this station and apparently all major overhaul work is done at Sasebo Navy Yard.

Meteorological station is manned by civilians.

All aircraft seen at the air station are marked by an "S" in front of the plane number.

From the air station to the south can be seen a three-towered radio station. This radio station is located at the point where the narrow channel from Sasebo Bay enters Omura Gulf. The towers are painted cream color and could be seen from a great distance. This is a relay transmitting station for all messages which are sent from the radio station at Sasebo Navy Yard.

JAPAN

OMURA AVIATION STATION

April, 1925

Purpose.—Service operating station; pursuit unit.

Built.—This air station is practically completed, but two hangars are still under construction.

Personnel.—Commanding officer, Commander Yamata; officer pilots, 10; noncommissioned officer pilots, 10; ground men, 200.

Buildings:

Administration and officers' quarters building.—Two-story wood; can accommodate 40.

Barracks for enlisted men.—Two-story wood; capacity, 200.

Dope and assembly shop.—Brick, contains two rooms 20 by 20 feet each, four ventilating ducts in each room.

Engine overhaul shop.—Wood and corrugated iron, 60 by 20 feet, well equipped.

Engine test-stand building.—Wood and corrugated iron containing three engine test stands.

Machine shop.—Wood and corrugated iron, 60 by 20 feet.

Carpenter shop.—Wood and corrugated iron, 60 by 20 feet.

Issue storerooms.—One wooden building containing issuing storerooms for navigation, gunnery, seamanship, and construction and repair.

Magazines.—One small magazine building surrounded by high turf-covered embankment.

Radio.—Two fairly large buildings; two radio towers about 120 feet high; medium power radio station.

Hangars.—One large steel-and-brick hangar, Kasumigaura type; capacity, 20 pursuit-type airplanes set up. One similar hangar under construction. One Bessenau canvas-covered hangar; capacity, 6

pursuit-type planes set up. One steel-frame corrugated-iron hangar under construction; capacity, 6 Hansa-type seaplanes set up.

Range.—One short range for testing machine guns.

Flying field.—About 1,000 yards, square level, and turf covered.

Ramps.—One ramp in front of seaplane hangar.

Piers.—One small concrete pier.

Planes.—Mitsubishi No. 1 pursuit, set up, 24.

NOTES.—At this station gunnery training, formation flying, and cross-country flying are engaged in. The pilots seem keen and in general this appears to be quite an efficient pursuit operating station.

The planes at this station are equipped with two machine guns of 7.5-milimeter caliber. One Lewis machine gun was seen in the storeroom and also one Thornton Pickard camera gun. One Vickers machine gun which was examined was manufactured in England in 1921.

The surrounding country is mountainous and affords no suitable place for making forced landings.

The statement was made that five airplanes from this station were to make a flight the next day to Kure to witness the launching of the *Akagi*.

JAPAN

AIR STATION AT OPPAMA

May, 1925

Purpose.—Service operating and coastal patrol station; training station for advanced work in radio, bombing, torpedo, and reconnaissance; shore base and training station for fleet air force attached to *Hosho*; torpedo plane station.

Built.—Practically completed; one hangar at present under construction.

Buildings:

Hangars.—One small steel and concrete hangar, capacity 6 seaplanes, set up; at present used for general storage purposes. One large steel concrete hangar, capacity 18 seaplanes; at present used for storage and assembly purposes. Three large steel concrete hangars, capacity 18 seaplanes each. These hangars at present house Rohrbach seaplanes, Yokosuka seaplanes, Hansa seaplanes, F-5 flying boats, and Mitsubishi No. 2 observation planes. One large balloon hangar of wood, capacity 3 balloons. Five steel-frame corrugated iron hangars, capacity 6 pursuit-type planes each, one under construction. Two Bessénau hangars, capacity 6 pursuit-type planes each.

Hospital.—Small wood building.

Barracks.—One 2-story wood building, capacity 400; one 2-story wood building, capacity 300.

Headquarters building.—Two-story wood.

Storerooms.—Three small wooden buildings.

Garage.—Corrugated iron.

Meteorological station.—Small wooden building in rear of station on top of hill.

Storage sheds.—Two small corrugated-iron buildings.

Ramps.—Seven concrete ramps. (NOTE.—Ground between hangars and ramps is concreted.)

Flying field.—About 1,000 yards by 600 yards, level, well drained, partly sodded.

Torpedo range.—Torpedo range extends to northward of adjacent breakwater.

Deck landing platform.—Wooden platform upon flying field approximately 600 feet long, 60 feet wide.

Planes.—Mitsubishi No. 1 pursuit planes (four of these belong to Hosho), 8; Mitsubishi No. 2, observation plane (two of these belong to Hosho), 6; Mitsubishi No. 4, torpedo plane (four belong to Hosho), 8; Yokosuka type seaplane, 3; Hansa type seaplane, 2; F-5 flying boats, 8; Rohrbach seaplanes, 2; Fairey Pintails amphibian (one being assembled at Nagaura aircraft repair and assembly plant), 3.

Personnel.—Officer pilots, 13; noncommissioned officer pilots, 20; administration officers, 20; engineer officers, 5; ground enlisted men, 600.

Signal tower.—None.

Fuel tanks.—None.

Cranes.—None.

NOTES.—All Mitsubishi No. 4 torpedo planes are equipped with Marconi radio sets.

Statement was made that organization at this station calls for one air company of 16 torpedo planes, one air company of Hansa and Yokosuka type seaplanes, one-half air company of eight F-5 flying boats.

Large dirigible hangar which was previously located at this station has been removed; it was also noted that recently four new hangars have been built and one new hangar is under construction, and that an addition has been made to one of the barracks building; also that the pilots have been increased from 15 to 33.

The planes that belong to the Hosho are housed in the two Bessemer hangars at the flying field. All the Hosho planes are marked with an "A" followed by the numeral.

Three Hosho bombing planes were seen flying in a very good V formation.

One Hosho torpedo plane which landed at the flying field while we were there had apparently just dropped a torpedo, as the torpedo straps were hanging loose.

It is understood that Mitsubishi No. 2 observation plane had a maximum speed of 125 miles per hour with four hours' fuel supply and landing speed of 50 miles per hour.

One of the F-5 flying boats seen was one of the original Short machines and another one was made by the Aichi Chronometer & Electrical Machinery Co. aircraft factory.

JAPAN

VISIT TO AIRCRAFT FACTORIES

May, 1925

TOKYO GAS & ELECTRIC SUPPLY CO. AT OMORI

Location.—Omori is about 30 minutes by the Tokyo-Yokohama electric train from Tokyo station.

President.—Goro Matsukata.

Personnel.—One thousand eight hundred workmen, all Japanese, are employed.

Buildings.—Ten machine shops, five foundries, four forge and blacksmith shops, two heat-treatment shops, one carpenter and wood-working shop; all of the buildings are of wood, are of poor construction, and poorly lighted.

Area of plant.—Thirty thousand tsubo (one tsubo is about 6 feet square).

Equipment.—Most of the machine tools are of American manufacture; equipment in general is modern and up to date; machine shops are quite crowded.

Product.—(a) Aircraft, none; (b) aircraft motors, Le Rhone 80 and 120 horsepower motors.

Normal production of aircraft motors.—At the rate of 90 to 120 of the 120-horsepower motors per year.

Maximum production.—Three hundred and sixty Le Rhone 120-horsepower motors per year.

At present this firm is working on an indefinite contract with the Japanese War Department for 60 Le Rhone motors a year; a two-

year contract with the Japanese Navy Department for 30 Le Rhone motors per year; a contract with the Japanese War Department for Nambu type machine guns of 6-millimeter caliber, amount of contract unknown. The Le Rhone motors being manufactured for the Japanese Army consists of 50 of the 80-horsepower motors and 10 of the 120-horsepower motors. Other products of this company are as follows:

(a) Westinghouse air brakes complete for the Government railways; (b) automobile trucks similar to White trucks, but of this firm's own design, are manufactured complete except for the magneto, which is the imported American Bosch magneto; (c) various kinds of machine tools; (d) air gauges and electrical instruments. This company has in times past manufactured for the navy small reciprocating steam engines, steam pumps, and condensers, all for auxiliary purposes.

NOTES.—All parts of the Le Rhone airplane motors are made by this firm except magnetos, which are imported mostly from France. To attain the maximum production of 360 Le Rhone 120-horsepower motors per year, practically all other work being done by this firm would have to be stopped.

KAWASAKI DOCKYARD CO., KOBE (AIRCRAFT DEPARTMENT)

No aircraft work is being done for the navy by this company. The president of the company, Mr. Hijiro Matsukata, objects to any visitors being shown any part of the aircraft department, as they are now engaged in a little secret aircraft work which they refuse to let anyone see, due to private competition.

Mr. Matsukata states that he had purchased several types of the Dornier metal plane and has the rights to manufacture these types, but that at present he has no contract with either the Japanese War Department or Navy Department for the manufacture of these planes. It is not known what the secret work is which this firm is stated to be doing by Mr. Matsukata, but it is considered to be probably some aircraft accessory. Five types of Dornier planes in possession of this company are the "Wal," "Comet," "Falke," "Lebelle," and "Delphin." At the army air station at Kagamigahara the "Falke" and the "Comet" airplanes were seen in a large hangar belonging to the Kawasaki Co., and situated on the railway near the army air station. This hangar, which is apparently used by the Kawasaki Dockyard Co. for its experimental work, using the flying field of the near-by army air station. It is considered to be likely that the Japanese Army will adopt for its own use certain types of the Dornier planes, particularly the "Falke" and the "Comet," provided

the Kawasaki Co. can demonstrate its ability to make satisfactory reproductions of these planes.

Mr. Matsukata stated that he believed the airplane metal produced by Vickers, England, was the best. and intimated that he was purchasing a certain amount of this metal from the Vickers Co. The only part of the aircraft department open to visitors is the aircraft motor machine shops.

Personnel.—Three thousand workmen are employed by the Kawasaki Dockyard Co. It is not known what proportion of this number is employed by the aircraft department.

Buildings.—Aircraft motor machine shop. Steel-frame corrugated iron building 250 by 40 feet, well lighted and equipped with modern machine tools, mostly of American make.

Product.—(a) *Aircraft.*—Salmson training and service airplanes for the Japanese Army.

Normal production.—At the rate of 120 Salmson planes per year.

Maximum production.—At the rate of 170 Salmson planes per year.

(b) *Aircraft motors.*—Salmson 230-horsepower motors.

Normal production.—At the rate of 120 Salmson 230-horsepower motors per year.

Maximum production.—At the rate of 250 Salmson 230-horsepower motors per year.

NOTES.—The Kawasaki Dockyard Co. does practically no work except government work. The maximum production figures given are made on the assumption that other government work besides aircraft work would continue.

The first Salmson plane built by this company was numbered 1001. In passing the wing shop of the aircraft department a Salmson plane was seen numbered 1214, so that it seems to be indicated that as many as 214 Salmson-type planes have been produced by this company.

In addition to the submarines and cruisers being built by this company for the navy it is the principal manufacturer of railway engines for the government-owned railways.

MITSUBISHI COMBUSTION AND ENGINE CO. AT NAGOYA

Personnel.—Total of 1,200, of which 600 are employed by the aircraft department.

Buildings.—(Aircraft department.)

Plane assembly shop.—Size 300 by 200 feet. Modern building of fireproof construction, well lighted, and with concrete floor.

Machine shop.—Size 270 by 200 feet. Modern fireproof building, well equipped, and well lighted.

Motor assembly and machine shop.—Size 300 by 200 feet, modern fireproof building, well lighted and well equipped.

Propeller shop.—Small wood building; 40 airplane propellers in various stages of completion were seen.

Woodworking shop.—Large modern building well equipped.

Wood storage shop.—About 60 by 60 feet.

Wood seasoning building.—Medium size with separate rooms of cement kept at proper temperature by hot air system.

Heat treatment shop.—Modern fireproof building equipped with up-to-date heat-treatment facilities.

Foundry.—Modern fireproof building, up-to-date equipment.

Forge shop.—Modern fireproof building, up-to-date equipment.

Hangar.—Small wooden hangar situated alongside flying field.

Flying field.—About 250 by 350 yards, situated at the works. Field is too small to take off or land large planes.

Product—(a) *Aircraft*.—Mitsubishi No. 1 pursuit planes, Mitsubishi No. 2 observation planes, Mitsubishi No. 4, bombing and torpedo planes.

Normal production.—At the rate of 120 Mitsubishi No. 4 planes per year.

Maximum production.—At the rate of 170 Mitsubishi No. 4 planes per year.

NOTE.—There are about 20 planes of the No. 2 and No. 4 type in various stages of construction in the assembly shop. There are no Mitsubishi No. 1 planes to be seen, although it is understood that this type is being manufactured.

(b) *Aircraft motors*.—Hispano Suiza 200 horsepower and 300 horsepower motors.

Normal production.—At the rate of 240 Hispano Suiza 300-horsepower motors per year.

Maximum production.—At the rate of 450 Hispano Suiza 300-horsepower motors per year.

NOTE.—The machine shops are working at about 80 per cent capacity.

MISCELLANEOUS NOTES.—The works of this company is situated on the water front and gives the general impression of a first-class plant in every respect.

Workmanship in general was very good, particularly the woodwork.

All workmen seen are Japanese; a few women are employed.

Two types of airplane propellers are being made, a two-blade, nine-section propeller for the Mitsubishi planes and a four-blade propeller for F-5 flying boats. Propellers are balanced by machine. All other work is hand work.

Most of the tools seen are of American make; some British and some Japanese.

Magnetos for airplane motors are imported from France.

About eight Napier Lion 450-horsepower motors were seen in the plane assembly building and are intended for use in Mitsubishi No. 4 planes.

Lambrin radiators are being manufactured for use on all types of Mitsubishi-built planes.

In motor assembly and machine shop were seen about 20 Hispano Suiza motors in various stages of completion.

The manager of the works is an ex-Japanese navy commander, construction corps.

As far as could be observed this company makes all parts of the planes and motors now being manufactured, except the magnetos.

It is understood that this company receives no subsidy from the Japanese Navy Department.

AICHI CLOCK & ELECTRICAL MACHINERY WORKS (LTD.), NAGOYA

Buildings.—(Aircraft department.)

Plane assembly shop.—Size 400 by 300 feet, concrete floor, well lighted, modern fire-proof building. In this shop the planes are erected, wings and fuselages constructed and linen fabric for wings marked off and cut.

Carpenter shop.—Large building, well equipped.

Wood storage shop.—Medium-size building.

Wood-seasoning shop.—Small concrete building equipped with steam radiators and apparatus for maintaining proper temperature for seasoning.

Machine shop.—Small building equipped with a few machine tools used for manufacturing metal parts used on aircraft.

Dope shop.—Small modern fire-proof building equipped with blowers and ventilating ducts in floor.

Propeller shop.—Small building, a total of about 12 two-blade propellers and four-blade propellers seen in shop.

Hangar.—Situated on waterfront about 5 miles from the aircraft factory. Modern concrete and corrugated-iron building about 150 by 75 feet, concrete floor, track runs down center of floor to small pier on beach, crane on pier. Complete seaplane or flying boats are run down to pier on truck and lowered into the water by crane. Three Eagle IX Rolls-Royce motors were seen in hangar and it was stated they were used for testing propellers.

Personnel.—One thousand six hundred men in entire plant, 400 men employed in aircraft factory; all Japanese. The manager of the aircraft factory is an ex-constructor, commander of Japanese

Navy. One aircraft pilot and one aircraft engineer are employed by the aircraft factory to test completed planes, both were formerly officers in the Japanese Navy.

Product—(a) Aircraft.—At present the only types of aircraft being produced are the Hansa type seaplanes. According to a statement made by the manager of the aircraft department the amount of the navy contract for Hansa sea planes has not been decided, but the company was informed unofficially that they would later be given an order and that they could start production in advance of the formal order. From October, 1924, to and including February, 1925, 30 Hansa seaplanes were produced at this plant for the navy, also during 1924, 27 F-5 flying boats were completed for the navy.

Capacity—Normal production.—At the rate of 120 Hansa seaplanes per year.

Maximum production.—At the rate of 150 Hansa seaplanes per year.

(b) Aircraft motors.—None.

NOTES.—All aircraft built by this company are constructed complete except for engines; engines for planes are obtained elsewhere, but are installed in the plane by this company.

One out of every five Hansas constructed is flown and thoroughly tested before delivery. All of the previously mentioned 27 F-5 flying boats were similarly tested by this company prior to delivery.

The only foreign wood used in plane or propeller construction consists of American spruce and Honduras mahogany.

Dope used is obtained from England; linen is homemade and appears of excellent quality.

All work done on propellers is done by hand.

The first Hansa sea plane constructed was in October, 1924.

Hansa seaplane has gas tank holding 180 liters, wing load stated to be 45 kilograms per square meter, factor of safety 7 or 8.

This plant is considered to be an excellent aircraft factory; workmen appear well trained, and workmanship in general is excellent.

AIRCRAFT DEPARTMENT OF THE YOKOSUKA NAVY YARD AT NAGAURA

Purpose.—Aircraft assembly, aircraft repair, and experimental work.

Buildings.—The only building which is open to visitors is a large steel framework corrugated iron building about 300 by 200 feet, with concrete floor. This building contains machine shop with about 30 machine tools, assembly room, and a woodworking shop. This building was considerably damaged by the earthquake of September, 1923, and repairs made are incomplete and of a temporary nature; the concrete floor is badly broken up.

Personnel.—Two hundred civilian employees.

Product.—One all-metal plane was in process of construction. Metal used in this plane stated to have been produced by Sumitomo Iron Works, Osaka. From a reliable source of information it appears that this plane has been under construction for about two years and that work on it has now been stopped. One Rohrbach twin-engine monoplane sea plane was being assembled; one Fairey Pintail was seen being rebuilt, having apparently crashed; only other aircraft seen was the wreckage of one Mitsubishi No. 2 observation plane and of several seaplanes. This plant is now producing no machines, and as far as could be ascertained none will be produced there in the near future.

NOTES ON AIRCRAFT FACTORIES IN GENERAL

In each case where it has been stated above that the normal production in aircraft is at the rate of so many planes per year it is meant that this figure is a normal production capacity and not that this number of planes is now being produced per year.

The last visit made to Hiro naval aircraft factory was made in December, 1924: the production estimate recently made is based on that visit.

The Nakajima airplane factory has not been visited and the recent remarks made about this factory were based on information obtained from various sources, but believed to be correct.

The army arsenal in Tokyo was visited in May, 1925. This arsenal produces aircraft for the Japanese Army.

The army air station and supply depot at Tokorozawa was visited in April, 1925, and it was ascertained that no aircraft is being produced at this station.

As a result of the visits made to the private and Government aircraft factories and from information obtained from expert sources, the following estimates are made as to the ability of the aircraft workmen, mechanics, and production in general of the aircraft factories: (a) Aircraft mechanics in general are very good but slow; woodworkers are very good to excellent; (b) in case an aircraft factory is given an order to manufacture a new type of aircraft a comparatively long time will ensue before the factory is capable of normal production, emergency high-speed production will fall down. Aircraft at present being produced are all of an obsolescent standard design and construction and in some cases are pure imitations of foreign types. There is no evidence that any aircraft factory in Japan has the ability to design or produce anything original in either aircraft or aircraft motors. When production is started on any new type foreign aircraft, foreign workmen are always em-

ployed in the early stages of production; the most recent example is the hiring of German workmen to assist and instruct in the production of the Rohrbach sea plane at Hiro Navy Yard and the Dornier planes at Kawasaki, Kobe.

JAPAN

ORGANIZATION OF FLEET

March 31, 1925

FIRST FLEET

First division: *Mutsu*, *Hyuga*, *Yamashiro*, *Fuso*.

Third division: *Kinu*, *Oi*.

First destroyer squadron.—*Tenryu*, flagship.

Thirteenth division: No. 2, 6, 8.

Fifteenth division: *Hagi*, *Susuki*, *Fuji*, *Tsuta*.

Sixteenth division: No. 10, 12, 16, 18.

First submarine squadron.—*Jingei*, tender.

Fourth division: *RO-54*, *RO-55*, *RO-56*.

Sixth division: *RO-57*, *RO-58*, *RO-59*.

SECOND FLEET

Fourth division: *Kongo*, *Hiyei*, *Kirishina*.

Fifth division: *Yura*, *Natori*, *Nagara*, *Sendai*.

Second destroyer squadron.—*Isuzu*, flagship.

First division: *Nokaze*, *Numakaze*, *Namikaze*, No. 1.

Fourth division: *Hakaze*, *Akikaze*, *Tachikaze*, *Hokaze*.

Fifth division: No. 3, 5, 7, 9.

Second submarine squadron.—*Chogei*, tender.

Fourteenth division: *RO-26*, *RO-27*, *RO-28*.

Twenty-sixth division: *RO-60*, *RO-61*, *RO-62*.

Not attached to any division: *I-51*.

ATTACHED TO THE FLEET

First mine sweeper division.—*Tokiwa*, flagship.

Mine sweepers: Nos. 1, 2, 3, *Wakamiya*, *Mamiya* (*Hosho* from September).

First foreign service squadron.—*Tone*, *Ataka*, *Saga*, *Toba*, *Hira*, *Hotsu*, *Katata*, *Seta*, *Fushimi*, *Sumida*.

Training squadron.—*Asama*, *Idzumo*, *Yakumo* (*Iwate* will be the only ship in the training squadron from May, 1925.)

SHIPS ATTACHED TO NAVAL STATIONS

Yokosuku naval station

Ships in commission.—*Nagato, Aso, Hosho, Fuji, Kamoi, Takasaki, Seito, Naruto.*

Third destroyer division: *Shiokaze, Shimukaze, Nulakaze, Yukaze.*

Second mine sweeper division: *Yudachi, Yugure, Kamikaze, Hatsushimo, Kisaragi, Hibiki.*

Training destroyers: *Urakaze, Shiratsuyu, Mikazuki.*

Third submarine division: *RO-11, RO-12, RO-13.*

Ships in reserve.—*Haruna, Irate, Nisshin, Kitagami, Susaki, Manshu, Musashi, Matsuyé, Asahi, Shiriya.*

Second destroyer division: *Minekaze, Sawakaze, Okikaze, Yakaze.*

Ninth destroyer division: *Kura, Maki, Keyaki, Tsubaki.*

Ships in special reserve.—*Chikuma, Chihaya.*

First submarine division: *HA-1, HA-2.*

Second submarine division: *HA-9, HA-10.*

Kure naval station

Ships in commission.—*Yahagi, Katsuriki, Karasuki, Tsurugizaki, Iro, Nojima, Ondo, Mamiya, Kosho.*

Sixth mine sweeper division: *Uranami, Isonami, Minazuki, Ayanami, Nagatsuki, Kikuzuki.*

Eleventh submarine division: *RO-51, RO-53.*

Fifteenth submarine division: *RO-14, RO-15, RO-16.*

Sixteenth submarine division: *RO-17, RO-18, RO-19.*

Ships in reserve.—*Ise, Hirato, Kuma, Kiso, Tama, Settsu, Noto, Noma, Muroto, Yamato.*

Fourteenth destroyer division: *Kawakaze, Tanikaze, Kiku, Aoi.*

Ships in special reserve.—*Akashi, Chitose, Adzuma, Yodo.*

Twelfth submarine division: *HA-3, HA-4, HA-5.*

Thirteenth submarine division: *HA-6, HA-7, HA-8, RO-52.*

SASEBO NAVAL STATION

Ships in commission.—*Tatsuta, Sata.*

Twenty-seventh destroyer division: *Hishi, Sumire, Warabi, Ashi.*

Eleventh mine-sweeper division: *Ushio, Nenohi, Harukaze, Asakaze.*

Twenty-third submarine division: *RO-3, RO-4, RO-5, Wakaba, Hatsuyuki.*

Ships in reserve.—*Tsuskima, Uji, Shikishima, Hayotomo, Shiretoko, Tsurumi, Erimo.*

Twenty-fourth destroyer division: *Momo, Yanagi, Kashi, Hinoki.*

Twenty-fifth destroyer division: *Nashi, Take, Momi, Kaya.*

Twenty-sixth destroyer division: *Kaki, Nire, Toga, Kuri.*

Twenty-eighth destroyer division: *Tade, Hasu, Yomogi.*

Ships in special reserve.—*Mogami.*

Submarines: *RO-1, RO-2, RO-25.*

MAIDZURU NAVAL STATION

Ships in commission.—*Kasuga.*

Seventeenth destroyer division: *Umikaze, Yamakaze, Nara, Enoki.*

BAKO NAVAL STATION

Ships in commission.—*Yubari, Komabashi.*

Twenty-third destroyer division: *Matsu, Sugi, Kashiwa, Sakaki.*

Twenty-fifth submarine division: *RO-29, RO-30, RO-32.*

CHINKAI MINOR NAVAL STATION

Ships in commission

Twenty-second destroyer division: *Katsura, Kayede, Ume, Kusunoki.*

Twenty-second submarine division: *RO-23, RO-24.*

OMINATO MINOR NAVAL STATION

Ships in commission

Eighteenth destroyer division: *Amatsukaze, Tokitsukaze, Isokaze, Hamakaze.*

Fifth submarine division: *RO-20, RO-21, RO-22.*

PORT ARTHUR DEFENSE CORPS

Ships in commission

Twenty-first destroyer division: *Sakura, Tachibana, Kaba, Kiri.*

JAPAN

MISCELLANEOUS NOTES

June, 1925

[From the Japanese press]

Alterations to "Hiyei" completed

Alterations to the foreward mast of the battleship *Hiyei* have been completed. The *Hiyei* has been in dock since the end of last year undergoing alterations and left on May 16 for Sasebo, her home yard.

Due to improvements in guns the fire control can no longer be successfully conducted from the old type bridge and the *Ise* and *Hyuga* will also undergo the same alterations. Alterations to the *Nagato* and *Mutsu* have already been made.

Cruiser "Abukuma" completed

The cruiser *Abukuma* was turned over to the navy on May 26, 1925, and arrived at Kure on June 2, her home yard. After being inspected by the commander in chief of Kure she will be assigned to the third division of the first fleet.

Cruiser "Suma" to be sold

The cruiser *Suma* (2,657 tons, dropped from navy list April 1, 1923) has been offered for sale by tender on July 2, 1925.

Cruisers at Kobe

Recently, while taking a boat ride around Kōbe Harbor, the three cruisers building were seen from a distance. The *Jintsu* (5,595 tons) is nearly ready to go into commission, and at the time of the visit was in floating dry dock being painted. A fairly close bow view of this cruiser was had, and it is established that the bridge hangar is large enough to house one plane only.

The *Kako* (7,100 tons) was at a fitting-out dock at the Kawasaki Dockyard. This is a flush-deck vessel, but there is a decided and peculiar drop of the deck aft. No structure has as yet been built above the main deck except a few plates of the bridge structure. The *Kako* was very light in the water, and there appears to be no

armor belt. The hull plates along the water line and above showed no bulge. About amidships on the port side about 8 feet below the main deck are four large circular ports. These ports may possibly be openings for torpedo tubes.

On the ways at Kawasaki Dockyard were seen the keel plates and a few hull plates of the 7,100-ton cruiser *Kinukasa*. As this vessel was reported as having been laid down on January 23, 1924, the progress has been very slow.

"Koshu" returns to Yokosuka

The withdrawal of the naval forces stationed in northern Karafuto was completed on May 6. This force was commanded by Commander Mitsuya and numbered about 300. The officers were taken on board the *Otomari* at Alexandrovsky and the men were transported by the *Koshu*, which returned to Yokosuka.

Visit to destroyer "Yukaze"

A trip was made to Shimoda on board the Japanese first-class destroyer *Yukaze*.

The *Yukaze* is of 1,345 tons displacement and was completed August 25, 1921, by the Mitsubishi Co. at Nagasaki. During the latter part of the run the wind was nearly head-on, of force 3-4 with corresponding sea, and no ground swell. As soon as Yokohama Harbor was cleared the speed was set at 21 knots. At this speed there was no vibration; the engines apparently functioned perfectly throughout the run. It was stated that 21 knots is the normal economical cruising speed. The *Yukaze* during the run was very steady, having very little pitch and no roll. She cuts through the water very nicely at 21 knots and appears in general to have very good seagoing qualities. The combustion was quite good, the funnel smoke usually being a bluish-white haze with an occasional puff of black smoke.

The personnel on board was stated to consist of 130 men and 9 officers, including warrants. This large crew was explained as due to the presence of men undergoing torpedo training, the *Yukaze* being employed as a school ship for torpedo training for enlisted men. No enlisted men corresponding to our mess attendants were seen. The light lunch in the wardroom was served by torpedo ratings. All the enlisted personnel seen were clean and in good uniforms. In general, they looked healthy, well built, and contented. Discipline appeared to be excellent. Orders were given

quietly, there was no confusion at any time, and everyone seemed to know his job.

I was permitted to see the bridge, the upper deck, crews' quarters, the wardroom, and officers' rooms. The parts of the ship seen were not particularly clean. Paint work was dirty and of such thickness that in all probability it has never been scraped.

The four 12-centimeter guns, the two searchlights, and the three twin 21-inch torpedo tubes were all covered with unpainted canvas. On the main deck under the bridge on each side is stowage space for four torpedoes. There were actually five torpedoes there stowed at the time of the visit. These torpedoes were also completely covered with canvas. It could not be ascertained whether or not any torpedoes were stowed in the tubes. A track for loading the tubes runs from the aftertubes along the deck on the port side, under the bridge, and aft on the starboard side to the starboard torpedo stowage under the wing of the bridge. A small wooden truck holding one torpedo is used to transport the torpedoes along the track to the tubes and stowage places.

One mine track on each side extends from the stern to just forward of the after gun. No mines were seen on board.

On the after side of the after deck house about 10 feet above the deck is located a dial painted yellow about 4 feet in diameter with two pointers painted black. Numbers from 1 to 10 and painted black are around the edge of the dial. Just below this dial is another smaller dial about 18 inches in diameter painted white with black numbers and black pointers with wires running from this dial to the larger one above. The operator stands in front of the lower dial, and by turning the pointers to certain numbers on this dial sets the pointers on the upper dial to the same numbers. A 3-meter range finder, also canvas covered, is located on a platform just forward of the after gun. On some other destroyers it has been noticed that the range dial is located on the after side of the foremast well above the bridge.

The forward part of the navigating bridge is closed with square glass ports at the center and canvas screen outboard. Overhead is a canvas awning. Steering is by hand. Just forward of the steering wheel is a magnetic compass fitted with a vertical pointer at the center about 6 inches in height. This pointer is used for obtaining compass bearings, and appears to be the only equipment on the bridge for taking bearings. About at the center of the bridge, but a little on the port side, is a brass spray shield about 4 feet high and 4 feet wide. Behind this spray shield are located the engine controllers, annunciators, and voice tube. For maneuvering the engine's bells are normally used with annunciators for stand-by purposes. The bells are mechanically rung by turning hand wheels.

The bridge weather protection is poor. There are no metal wind breakers. The glass ports are portable, and apparently in extremely rough weather the bridge is stripped of canvas and glass ports, the brass spray shield giving protection to the engine controllers and operator.

All fittings and circuits on the bridge are water-tight and all metal is composition. Outboard on both sides of the bridge are two brass castings with water-tight covers and with electrical circuit connections, which apparently contain fire-control apparatus. Also on starboard side of bridge is a wooden chart board with wooden cover containing a round glass port for light.

Abaft of the bridge is a runway between the searchlight structure and the foremast. The signal-flag racks are mounted on the after side of this runway. Directly under the bridge is the radio room, which was not visited. The antenna lead from the two flat top antennæ stretching between the masts is lead into the radio room through heavy wire protecting screens.

The crews galley on the main deck is coal burning, small, and was quite dirty. The after crews' quarters just below the main deck is small, crowded, and poorly ventilated, and was only moderately clean.

No power boats are carried.

No depth charges were seen and there is no stern platform for discharging depth charges.

There are no antiaircraft guns on board.

No machine guns nor machine-gun mounts were seen.

All electrical circuits seen both above and below decks are armored and fitted with water-tight junction boxes.

No director fire-control gear was seen. Evasive answers were made by the officer personnel when questioned as to the director fire control.

The general impression gained is that the *Yukaze* is a good sea boat, handles very well, and is in an excellent condition generally, but is not up to standard as regards cleanliness.

Destroyer "No. 21" launched

Destroyer *No. 21* was launched at Maudzuru on June 5, 1925.

Destroyers to be sold

The third-class destroyers *Matsukaze*, *Nowake*, *Shirayuki*, and *Arare* (381 tons, dropped from navy list April 1, 1924) have been offered for sale by tender on July 2, 1925.

The destroyers *Kagero* and *Akebono*, which were placed out of commission in 1923, will be sold by competitive bids to private firms. Armaments and other principal parts are now being removed from these destroyers at Kure.

Training submarines of submarine school to make cruise

The eleventh submarine division (*RO-51, RO-53*), fifteenth submarine division (*RO-14, RO-15, RO-16*), and sixteenth submarine division (*RO-17, RO-18, RO-19*), attached to the submarine school, Kure, will leave on July 21 for about one month's cruise, taking on board about 30 officer students of the naval college.

The submarines will cruise around the Inland Sea, then to Chefoo, Ryojun, Dairen, Jinsen, Chinkai, engaging in various practices on the way.

Submarine "RO-25" to be reconstructed

Submarine *RO-25* (old No. 43) which sank and was later salvaged is to be reconstructed at the Sasebo Navy Yard.

It was intended to use the *RO-25* in conducting experiments for raising sunken submarines with the special service ship *Asahi*, which is now being fitted with the necessary equipment. It has now been decided to use one of the German submarines allotted to Japan after the war, allowing the submarine to sink to the bottom and then to be raised by the *Asahi*. These trials will be conducted in August.

Training of men for submarines

Due to the need of trained men for submarines, it has been decided to waive the educational requirements for applicants for the training course at the submarine school and accept whoever is recommended by the various naval stations.

Due to the completion of new submarines the shortage of trained crews for submarines is keenly felt, and to cover this shortage it has also been decided to give a short period of training of one to two months duration twice a year to those men who do not take the regular training course at the submarine school. The first period of training will start May 19 and last one month.

Submarines at Kobe

On a boat trip around Kobe Harbor the shipbuilding activities of the Mitsubishi and Kawasaki Dockyards were noted.

At the Kawasaki yard the submarine *I-3* (1,970 tons) is on the ways. The hull of this submarine is practically complete. The submarine *I-1* and *I-2*, both of 1,970 tons, are launched and are being completed at the fitting-out dock. The *I-1*, which is the furthest advanced as to completion, is still having structural work done on the deck. The bow tubes were covered by canvas. What appears to be a small round conning tower rises about 3 feet above the pressure hull well forward on the water line. Another similar structure is situated well aft. It is believed that these small conning-tower structures will be used for telescopic radio masts.

A few feet farther aft is a hatch followed by a platform in process of construction, which is probably the gun platform. Then comes the conning tower, aft of which is what appears to be another gun platform, hatch, and farther aft the second small conning tower for telescopic mast.

Both the *I-1* and *I-2* are far above the normal water line, which indicates that the batteries and engines have not yet been installed. Also on the ways at Kawasaki Dockyard Co. are two small submarines, both in the early stages of construction. These submarines are the *I-21* and *I-22*, both 1,000-ton mine layers.

At the Mitsubishi Dockyards there were two submarines on the building ways and two launched. Of the latter two one was in floating dry dock. All of the submarines are of 998 tons. The two launched are the *RO-64* and the *RO-68*, and the two on the ways probably the *RO-65* and the *RO-67*. The *RO-65* and the *RO-67* have the pressure hulls about half completed. It was again observed that this class of submarine is of double hull construction. From the submarine in dry dock it was ascertained that this class is fitted with six bow tubes. The *RO-64* appears about ready to go into commission.

Aeronautical statistics

The following is from the Japan Year Book, prepared by the statistical bureau, and published in 1924.

 NAVAL AIR SERVICE

Number of flights, hours flown, of persons who went up, of accidents, and damage to airplane body and engines:

| Year | Number of flights | Number of hours flown | Number of persons who went up | Killed | Wounded | Slightly wounded |
|-----------|-------------------|-----------------------|-------------------------------|--------|---------|------------------|
| 1921..... | 5,984 | 2,676 | 10,513 | 2 | 4 | ..... |
| 1922..... | 11,162 | 4,815 | 20,703 | 4 | 11 | ..... |
| 1923..... | 27,231 | 10,461 | 52,757 | 5 | 21 | ..... |

| Year | Damage to airplane body | | Damage to engine | |
|-----------|-------------------------|---------------|------------------|---------------|
| | Slightly damaged | Badly damaged | Slightly damaged | Badly damaged |
| 1921..... | 120 | 50 | 104 | 52 |
| 1922..... | 261 | 111 | 201 | 98 |
| 1923..... | 562 | 142 | 459 | 165 |

CASUALTY AND ACCIDENT RATES

| | Casualty rates | | | | | |
|-----------|-------------------|---------|-----------------------|---------|-------------------------------|---------|
| | Per 1,000 flights | | Per 1,000 hours flown | | Per 1,000 persons who went up | |
| | Killed | Wounded | Killed | Wounded | Killed | Wounded |
| 1921..... | 3.3 | 6.7 | 7.5 | 14.9 | 1.9 | 3.8 |
| 1922..... | 3.6 | 9.8 | 8.2 | 22.8 | 1.9 | 5.3 |
| 1923..... | 1.8 | 7.7 | 4.8 | 20.0 | .9 | 3.9 |

ACCIDENT RATE PER 1,000 FLIGHTS

| | Damage to airplane body | | Damage to engine | |
|-----------|-------------------------|------------------|------------------|------------------|
| | Badly damaged | Slightly damaged | Badly damaged | Slightly damaged |
| 1921..... | 186.5 | 447.6 | 194.0 | 388.0 |
| 1922..... | 229.8 | 540.3 | 202.9 | 416.1 |
| 1923..... | 135.6 | 536.7 | 157.6 | 431.7 |

Long-distance flights

SASEBO-DAIREN FLIGHT

Distance 1,500 miles. Two F-5 boats numbered *S-18* and *S-19* were used.

May 5, 8 a. m., left Sasebo. Stops at Mokpo, Chemulpo.

May 6, 1 p. m., arrived Dairen.

May 9, 6 a. m., left Dairen.

May 10, 8 a. m., arrived Sasebo.

YOKOSUKA-OTOMARI FLIGHT

Distance 842 miles one way. Two F-5 boats numbered *68* and *69* were used, piloted by Lieutenant Wada and Sublieutenant Naka-

jima; outward trip actual flying time, 17 hours; homeward trip, 18 hours.

Left Yokosuka May 5, 7.10 a. m., arrived Ominato 2 p. m.

Left Ominato May 6, 8.35 a. m., arrived at Otaru 12.35 p. m.

Arrived Otomari May 7, 11.50 a. m.

Left Otomari May 9, 6.55 a. m., stopping at Otaru to refuel; arrived at Ominato May 9, 3.30 p. m.; left Ominato May 10, 7 a. m., arrived Yokosuka 2.05 p. m.

KASUMIGAURA—OTOMARI FLIGHT

Distance 711 miles each way. Two Seal amphibians were used.

May 5 left Kasumigaura; arrived Ominato 4.10 p. m.

May 7, 7.33 a. m., left Ominato; arrived at Rumoi 9.30 a. m., to refuel; left Rumoi May 7, 12.10 p. m., arriving in Otomari 2.45 p. m.

May 11, 7.55 a. m., left Otomari; 11.30 a. m. arrived in Rumoi to refuel; 1.30 p. m., left Rumoi, arriving Ominato 4.50 p. m.

May 12, 6.20 a. m., left Ominato, arrived in Kasumigaura 3 p. m.

YOKOSUKA—PEKING FLIGHT

Distance both ways 2,975 miles.

Planes: Two of the Mitsubishi 1924 attacking deck planes fitted with Napier Lion 450-horsepower motor.

Pilots: Lieutenant Kikuchi and Sublieutenant Maeda.

Numbers of planes: *Y-316*, *Y-318*.

May 24, left Oppama for Omura.

May 25, left Omura, arrived Heijo.

May 28, left Heijo; forced to return account bad weather.

May 29, left Heijo, arrived Peking.

RETURN TRIP

June 1, left Peking, arrived Heijo.

June 2, left Heijo, arrived Omura.

June 3, left Omura, arrived Oppama.

NOTE.—The planes referred to as Mitsubishi 1924 attacking deck planes are the 1924 model bombing torpedo planes built by Mitsubishi, Nagoya.

Captain Abe, one of the aviators who is to participate in the Tokyo-Paris flight next month, made a nonstop flight from Tachiaroi in Fukuoka Prefecture, Kyushu to Moriota, Iwate Prefecture, thus

flying the length of the main island. He hopped off at 8.05 a. m., May 12, and landed at 4.52 p. m., covering the distance of approximately 850 miles in 8 hours 47 minutes.

The flight was made as a trial for the forthcoming European flight.

Aviation to be taught submarine officers

The Japanese Navy is to start construction of large type of submarines shortly (3,000-ton class), and these submarines are to carry airplanes on board. This has already been practiced in the United States Navy. Recently the Japanese Navy purchased from Germany airplanes of the type to be carried on submarines.

It has become necessary to train the submarine officers in aviation, and such a course has been arranged, having assigned some aviation officers attached to the Hiro branch of Sasebo aviation corps as instructors for the course in the submarine school at Kure.

Until such time as the 3,000-ton submarines are completed the training will be done at Hiroshima-wan, dividing the course of instruction between training in submarines and training in aviation.

Plan naval aviation bureau

The navy department has submitted a plan for the establishment of an aviation bureau to the cabinet. The plan was drafted by naval aviation experts and is expected to receive the approval of the cabinet as part of the program for the improvement of the naval air service. A vice admiral will be in charge of the proposed bureau.

New model training seaplane

The naval training Panther plane (monoplane *Hispano*, 200 horsepower) which is being built by the Nagoya Clock & Electrical Co. and by the Nakajima Airplane Works are meeting with frequent accidents, due perhaps to the fact that most of the pilots are not used to handling monoplanes.

Due to the frequent accidents with this type, the navy has decided to modify the design, and a new model machine is being built in Nagoya which is expected to be completed the end of May. Hispano-Suiza 300-horsepower motor will be used.

NOTE.—Only Hansa type monoplane seaplanes are being manufactured by this company. It is therefore indicated that a modification of the present Hansa is to be manufactured.

New radio stations for Chosen

The communications bureau of Chosen has decided to construct wireless stations at Fusan, Genzan, Seishin, and Hoko, at a cost of 169,000 yen.

The Fusan and Genzan stations will have a wave strong enough to reach 300 miles and the Seishin station 400 miles.

Radio station at Kure to be improved

The naval radio station at Kure, which has been used as a relay station, has been found inadequate, especially in communicating with ships at sea, and it has been decided to build a more powerful and better equipped station there. The sum of 300,000 yen has been provided for this purpose under the current budget, and work on the station will be started soon.

Naval radio maneuver

The radio system of the Japanese Navy will be put to a thorough test throughout the Empire on June 10 and will be on a war-time scale.

From the double standpoint of State defense and economic efficiency, the naval authorities have now completed their plan of radio administration. In addition to the three large naval radio offices—namely, the Tokyo, Sasebo, and Hozan (Korea) stations—another has been established at Honsho-mura near Kure by moving the Kure radio office and expanding it at a cost of 100,000 yen. On the other hand, all naval vessels, including those in reserve, have been equipped with radio apparatus of the M type dual system so as to enable them to transmit and receive radio messages.

The proposed naval radio maneuver—the first of its kind ever held in this country—is intended for the purpose of determining the maximum capacities of radio communication through the medium of the above naval radio system. All naval radio offices and personnel will be mobilized for the exercise.

With the Tokyo radio office as the center of the national radio system an attempt will be made to establish radio communication between the naval headquarters in Tokyo and all warships at anchor in naval ports or operating off Soya in the north or off Mako and the Bonins in the south. With the Sasebo, Hozan, and Kure naval radio stations acting as bases, communication between squadrons as well as individual ships will also be tested on this occasion.

The exercise is to last several days. The broadcasting of orders and instructions from the naval headquarters will be intended for all warships within the Imperial territorial water limitations and for this purpose special standard wave lengths will be employed.

Naval officers to be assigned to merchant-marine schools

Naval as opposed to military instruction is to be established as a regular course in the marine navigation schools, either Government or private throughout the country.

The one school where such instruction is given as part of the regular curriculum is the Tokyo Marine Navigation School. The navy officials at first hesitated to introduce naval instruction in the navigation schools, fearing that the establishment of such a course would create misunderstandings about the intention of the navy, and would also entail additional expense to the navy's budget.

Assignments of naval officers to the navigation schools will be made beginning the next fiscal year, three officers below the rank of commander to be assigned to each school to instruct in navigation, gunnery, and the handling of torpedoes.

NETHERLANDS

THE KOOLHOVEN AVIATION PLANT

May, 1925

This plant is located on the outskirts of The Hague; consists of one main building, housing all offices, shops, and assembly rooms. The plant is being doubled by the construction of another building of about equal size. The entire layout is on a small scale and at present only about 60 men are employed.

The following types of aircraft were seen on the assembly floor:

FK-31, two-seater reconnoissance.

FK-33, commercial type.

FK-32, training type.

FK-23A, single-seater fighter.

The FK-31, two-seater reconnoissance type, has been thoroughly tested by both the Dutch and the French Governments and has proved a very satisfactory airplane. Mr. Koolhoven stated that arrangements had been made with a French company for the manufacture under license of this type in France for the French Govern-

ment. There was seen on the floor of the assembly room an FK-31, in which there was being installed a 450 W type Hispano-Suiza engine with Lamblin radiators. The most interesting feature of the FK-31 was the arrangement of engine mounting by which the engine could be quickly detached on one side and swung out to a position where it was very accessible or by which it could be detached on both sides and very easily removed.

An FK-33, three-engine commercial type, was seen in the course of erection. This airplane looked very sound and the rather peculiar engine arrangement appears very good.

The FK-23A, single-seater fighter, is equipped with an Armstrong-Siddeley "Lynx" engine. This airplane possesses no particularly new features, but appears very sound and gives a very good performance when its rather low power is considered. The FK-32, training type, is equipped with 130-horsepower Clerget. It is stated that a considerable number of these aircraft have been ordered by the Dutch Army for training purposes. Attention was especially invited to the wide tread as compared to the total span, and to the rather peculiar chassis design.

The Koolhoven plant has not had much experience in the construction of seaplanes. Mr. Koolhoven has designed and constructed a small flying boat for the Dutch Navy. This boat was equipped with an Eagle IX Rolls-Royce engine and was intended to be carried on the *Java* type of cruiser. It was admitted that the type was not successful, but it was stated that the restrictions which were placed on the designer, in view of the service which the flying boat was to perform, was such that its failure was almost certain. The company has also designed and it is about to construct a three-seater twin-float seaplane, which is called the North Sea reconnaissance type. This seaplane is to be equipped with a Napier Lion engine. General arrangement plans were seen and the design appeared to be along straight forward lines with the exception of the floats. The floats had an inverted U-shape channel from the bow, which channel gradually flattened out until it disappeared altogether at the step. A similar channel began just abaft the step and was carried to the stern of the hull. The rise of the after portion of the hull from the step was unusually steep, and it was stated that this was because of the very thick wing section which was being used and the consequent large angle of incidence at landing speeds. No tail float was used, and it appeared that the seaplane would be very unstable when resting on the water on account of its apparent lack of buoyancy aft. The company is not yet prepared to give any predicted performance to this seaplane.

NETHERLANDS

ACTIVITIES OF FOKKER PLANT

May, 1925

The following further information is of interest in regard to the number of airplanes ordered by the Russian Government from Fokker and the number of those airplanes which have been delivered to the Russians. Officials of the Fokker Co. with whom contact was made evaded giving out anything further than very general information. However, the head of a Dutch aviation plant discussed the subject very freely and stated as definite facts certain information which is at variance with that contained on pages 65 and 66, January, 1925, BULLETIN.

The informant stated that he had recently been all through the Fokker plants, and that he was positive that his information was correct. He stated that two orders had been completed and delivered to the Russian Government. The first of these orders was for 14 airplanes and the second for 175 airplanes. According to him, the Russians placed a further order, but due to certain financial difficulties this order was never executed. He stated that Fokker pretended that he was executing the order and constructed an additional 120 single-seater fighter airplanes of the D-13 type, equipped with Napier Lion engines. He further stated that these airplanes were bought by an Argentine firm presumably for the Argentine Government, but that this firm (whose name he would not disclose) was in reality controlled by the Stinnes interests in Germany. He said that the 120 airplanes had been completed and were in storage in a warehouse of the Fokker Co. in Amsterdam and that he personally had seen and counted them.

The informant speaks English well, having lived in England for many years, and is a man with an excellent reputation so far as is known. It should be pointed out, however, that he is a commercial rival of Fokker in Holland and that it is possible his statements in connection with Fokker's activities may be slightly colored in order to create a hostile feeling against Fokker.

The visit of the writer to the Fokker plant subsequent to his conversation with the above-mentioned informant will be covered in a separate report, but it might be stated here that all his hints and finally requests to visit other parts of the Fokker plant than those which were voluntarily shown to him were successfully evaded by the officer of the company who accompanied him on that inspection. It might also be added that no information confirming my informant's statements could be obtained from any source.

NETHERLANDS

NAVAL NOTES

June, 1925

Light cruiser "Java"

The following information is of interest regarding the new Dutch cruiser *Java*:

The *Java* was planned, money appropriated, and work begun during the recent World War, about 1916. She was built at Flushing, Holland, and commissioned only a few months ago. She is now making a shake down cruise before leaving for the Dutch East Indies, in October. The *Java* is intended to do permanent duty in the East Indies and was designed especially for this tropical duty. She has dimensions as follows: Length, 155 meters; beam, 15.5 meters; displacement, 7,300 tons; speed, 31 to 32 knots; and a cruising radius of 5,000 miles. Her crew consists of 30 officers and 440 men. Her armament consists of ten 15-centimeter and four 7.5-centimeter antiaircraft guns. Seven of the 15-centimeter guns may be fired to a broadside. These 15-centimeter guns are mounted on the main deck and surrounded by a shield of about 2 to 3 centimeters thickness. This shield envelopes the gun entirely, and with the canvass screen rigged it was not possible to see many details. They appear to be about 50-caliber guns and have no bell at the muzzle. The four antiaircraft guns were on the superstructure and entirely covered.

Ammunition is supplied all guns by electric hoists somewhat similar to our 6-inch gun hoists.

The entrance to the conning tower is on the bridge and to the rear. Door was closed, also sight slits, so no idea was had as to thickness. There are about 10 searchlights of about 24 inches diameter grouped about two military masts. The side armor is of 7.5-centimeter thickness and the protective deck about 5 to 6 centimeter. There are two range finders, a small one rather high upon the foremast and a larger one immediately above and in rear of the bridge. The smaller is about 2 meters and the lower about 4.5 meters. Nothing much could be seen of the fire-control instruments but they appeared to be of German construction. The bridge is entirely open and the watch officer has little or no protection. There is a gyro repeater at the wheel and one on each bridge wing. There are good telephone and voice-tube connections throughout the ship.

The ship is driven by three screws turned by turbines, located in three water-tight engine rooms. Entrance was gained to only one fireroom and one engine room, the after one which houses the engines that turn the center screw. In the latter is also the main dynamo plant and many auxiliary motor generator sets. Each engine room is a complete plant in itself but the after room is usually the control room. Each shaft is driven by three turbines, and while the starboard and port engines may be run either way the center one is capable of only ahead motion.

The main engine arrangement in the after engine room was two small impulse turbines geared to the shaft of a large L. P. reaction turbine. The engineer of the *Java* called the two small ones cruising turbines, but did not

explain anything about the steam going to the other rooms, which it is believed had intermediate-size turbines. The after engine room contained also a complete auxiliary condensing set, main air pump similar in size to our destroyer air pumps, one Westinghouse De Laval steam air ejector, a main condenser of over 4,000 tubes, about 950 square meters of surface (the other engine rooms with backing power have condensers of over 5,000 tubes each with a surface of 1,450 square meters each), a main circulator driven by a reciprocating engine, and one evaporator with necessary pumps. The water through the main condenser makes but one trip; there is no return. As has been said, the main electric generating set is in this engine room. This consists of four 200-kilowatt turbine sets, direct connected, and making 3,000 revolutions per minute. The necessary switch and control boards are near by; also a motor generator set for the electric steering gear, a set for the radio, and another for gun firing. This engine room is the station of the watch officer when underway. On one board he has gauges for every steam line, steam chest, oil line, revolution indicator, and pump discharge. Also, all three torsion meters are located in this room. The three shafts show about 72,000 horsepower at full power. This is derived from steam generated by eight 10,000-horsepower Yarrow-type boilers placed in four nonconnected firerooms. The boilers are placed side by side. There are 11 burners to each boiler. In each fireroom are two feed pumps, two oil service pumps, and two fire and bilge pumps. There were not seen any booster pumps. Each service pump has an oil heater. The feed pumps were quite large, each one designed to supply water to two boilers at full power. Feed-water heaters and feed tanks were not seen; they were evidently in the forward engine rooms. Firerooms were very roomy, but engine rooms very crowded.

One thing noted which is very different from our ship was the evaporator plant. There were three shells, one in each engine room, each having its own sets of pumps. The total capacity is about 60 tons per 24 hours. According to the engineer officer they are designed to operate on live steam only. There are three separate and distinct fresh-water systems: (1) For boiler feed, (2) for drinking purposes, and (3) for washing and bathing.

Fuel is contained in 60 tanks; total capacity about 1,500 tons.

All winches are electrically operated. There are two hawse pipes, very small, which give a very difficult mooring. This is offset by having an anchor in the stern with flukes just clear of the water when stock is up in hawse pipes. There is a spare anchor on port forecastle.

New destroyers

The following extract from the British press supplements the information given on page 60 of the June, 1925, BULLETIN:

The recent announcement that two further torpedo-boat destroyers are to be built to Yarrow & Co.'s designs in Holland implies a remarkable tribute to the success of British design for fast naval vessels. It will be remembered that last summer the Netherlands Government invited competitive designs for torpedo-boat destroyers from well-known builders of such vessels in Great Britain, America, France, and Germany. The Yarrow design was selected as being the best among those submitted, and the Scotstown firm was intrusted not only with the supervision of the vessels during their construction but was also asked to supply from Glasgow certain boiler parts and

forced-draught turbine fans of the Yarrow pattern, as well as certain machinery parts. Altogether, four destroyers have been ordered by the Netherlands Government, three of which are being built at the yard of Burgerhout's Shipbuilding & Engineering Co. (Ltd.), Rotterdam, and one at the Royal De Schelde Yard at Flushing. The main characteristics of the new destroyers are given in the following summary: Length over all, 322 feet; beam, 31 feet; depth, 18 feet 9 inches. When fully loaded the displacement will be about 1,620 tons. The machinery is of the Parsons geared turbine type, with special cruising turbines for speeds up to 15 knots. The designed speed in the normal condition is to be 38 knots, and that in the loaded condition 34 knots. Steam will be generated in three boilers of the latest Yarrow pattern, fitted with the firm's patented superheaters and air heaters. The armament of the new vessels includes four 12-centimeter 50-caliber guns, two 7.5 antiaircraft guns, and three triple 53-centimeter torpedo tubes. A complete system of firing control is fitted, while provision is made for the installation of bomb throwers and mine-launching gear.

POLAND

NAVAL NOTES

June, 1925

Naval policy

Plans for creating a strong Polish Navy have at last crystallized and taken definite form. According to newspaper reports, the following ships have been ordered in France (some also in England) to be delivered within the next 10 years:

Ten submarines of the latest type.

Ten destroyers.

Eight transport ships, lightly armored and armed.

The French-Polish Co., in charge of the harbor improvements at Gdingen, will hasten the work so that it will be finished a year sooner than the date stipulated in the original contract. Two new railroad lines will also be constructed to improve connections with this harbor. These lines will serve principally to connect the Dombrowa and Silesian industrial districts with the coast and will also be of great importance as strategic lines.

Transfer of Polish Navy from Putzig to Gdingen

The date of the transfer of the Polish Navy from Putzig to Gdingen has been definitely set for June 1. It is planned to convert the arsenal grounds at Westerplatte into a modern harbor for exclusive Polish use.

PORTUGAL

MILITARY ORGANIZATION IN THE AZORES

May, 1925

[From a consular report]

The following information is thought to be reliable:

NUMBER OF MILITARY UNITS

There are approximately 500 units in the entire Azores, consisting of about 420 infantry and 80 artillery. Under warlike conditions this strength would be greatly increased according to need.

MILITARY ZONES OR DISTRICTS

1. Ponta Delgada, including the islands of St. Michael's and Santa Maria; 2. Angra, including the islands of Terceira, Graciosa, and San Jorge; and 3. Horta, including the islands of Fayal, Pico, Flores, and Corvo. Residents serve only within their immediate zone. Accordingly, are not called upon to render service in other districts in the Azores or in Portugal or its possessions. Similarly, no residents of Portugal or its possessions are included in the ranks in the Azores. On the other hand, it is well to bear in mind that the Azores, although geographically distant about 1,000 miles, are politically designated as an integral part of Portugal and are not regarded as a colony.

TRAINING

Officers are trained at Lisbon, almost always Azoreans. The commanding officer at Angra holds the rank of a general of brigade. A colonel commands at Ponta Delgada, while at Horta, Fayal, the officer in charge has lower rank. Occasionally an officer who has shown revolutionary tendencies or for some other reasons is not in good favor is detailed temporarily from Portugal to the Azores.

Units of the rank and file are given their instruction in the Azores. Enlistment may begin after twentieth birthday. English tactics are taught.

LENGTH OF SERVICE

The period of instruction is 15 weeks in the case of the ordinary soldier, which is followed by service during one year. This period is

punctuated by leave of absence during a day or two, occasionally longer, every three or four weeks to enable the soldier at his request to pass a few days with his immediate family or friends.

PAY

The pay of the ordinary soldier commences on the day he begins his period of instruction and continues at the same rate during his entire enlistment. It is the negligible sum of 33 centavos per diem, equivalent to slightly more than \$0.016 United States currency. (To-day's rate of exchange: \$1 United States currency equals 20.20 escudos of Portugal.)

The soldier may, by application and ability, be promoted to the rank of second sergeant during the period of enlistment with pay at approximately 400\$00 escudos a month (about \$20). At his request he could then be sent to Lisbon to be trained during one year, whereupon he might return to the Azores with the rank of first sergeant and a monthly pay of about 800\$00 escudos (approximately \$40).

SUBSISTENCE

The ordinary soldier is quartered in one of the forts or in barracks. The food consists of very simple but presumably wholesome fare. On especial occasions wine, cigars, and cigarettes are served, while the pay is too small to purchase the average soldier's requirements as to tobacco.

EQUIPMENT

The clothing is considered suitable and adequate for the climatic conditions of the Azores of gray cotton material in the summer and gray woolen cloth in the winter, with gray woolen overcoat and stout shoes. There are several varieties of gray caps. Gloves are worn by guards on especial occasions. The material in the way of equipment is manufactured in Portugal.

CANNON

The American naval forces stationed at Ponta Delgada during the Great War placed two 6-inch guns, one at Santa Clara, on the coast just beyond the beginning of the breakwater of Ponta Delgada, and another gun of similar dimensions placed not far from the former British wireless station about 6 miles west of Ponta Delgada. Some other equipment in the way of cannon, such as that in the old fort at Ponta Delgada, would be of very slight service in time of war, as it is not of modern type.

Apparently there are two fairly strong Portuguese guns at Horta, Fayal.

RIFLES, BAYONETS, REVOLVERS

Rifles used are "Mauzer Vergueiro" (Portuguese improvement) and "Kropatechek"; bayonets are "Kropatechek"; while revolvers are "Mauzer automatic"; origin of rifles, bayonets, revolvers, and ammunition is Germany.

MORALE

The military units in the Azores are reputed to be very peaceable and orderly types, free from revolutionary tendencies. Some of them become good marksmen with rifles and revolvers.

RUSSIA

NOTES

Russian submarines under construction

It is reported that the submarines now under construction at the Baltic Yards will have a surface displacement of 850 tons, length 85 meters, beam 7 meters, and a draft of 5 meters. Surface speed, 15, and subsurface speed, 10 knots; 10 torpedo tubes and one 10-centimeter gun. Surface radius at 9 knots, 7,000 miles; subsurface radius at 5 knots, 105 miles.

First soviet ship arrives in Brazil

[From the Brazilian press]

The Russian ship *Valsad Verovsky*, under the command of Capt. Ivan Kuligin, arriving from Leningrad for Montevideo, put in at Bahia for water supply Monday morning, May 18. The ship received 120 tons of water. It is the property of the Russian Soviet Government and flies the red flag, which is seen for the first time in Brazilian waters. The flag is all red in color and has in white in the upper corner the design of a scythe and a hammer intertwining. The boat is loaded with timber. The *Valsad Verovsky* was not allowed to dock at Bahia and had to keep outside of the bar, guarded by armed Brazilian sailors and port policemen. Fifty men of the crew have no distinction of posts or uniform of any sort. Many visits were received by the ship while in the port of Bahia.

SPAIN

NAVAL NOTES

"Blas de Lezo" commissioned

The light cruiser *Blas de Lezo* was placed in commission at El Ferrol May 22, 1925.

Her commanding officer is Capt. Angel Cervera.

NOTE.—The *Blas de Lezo* is a sister ship of the *Mendez Nuñez*, the details of which appeared on pages 85 and 86 of the May, 1925, BULLETIN.

Bombing planes for the Spanish Navy

The Spanish Navy recently ordered six large bombing planes to be constructed at Barese, Italy. The last two of them were delivered on June 1, 1925, at Barcelona, having flown there from Barese.

These planes are said to be capable of carrying more than 1,000 kilos of bombs.

SWEDEN

NAVAL NOTES

June, 1925

[From the German press]

The reduction of the armed forces in Sweden is based upon the following considerations:

- (a) Sweden's favorable situation in a military sense.
- (b) Perfect accord and patriotism of the Swedish people.
- (c) Sweden's friendly relationship with other countries.
- (d) General war weariness of entire continent of Europe.
- (e) Necessity for economy.

The army and navy budgets will only represent half those of the year 1914, notwithstanding the great increase in prices since that date.

The proposal for the reduction of armament naturally met with great opposition in certain circles.

The navy demands an increased appropriation for new constructions and those to replace obsolete types. The proposed appropriation represents about fifteen and a half million kroner annually, which is double that of the government proposal.

Swedish Navy, organization

According to the Government proposal, the two stations Karlskrona and Stockholm, and the naval bases Göteborg and Gustafsvik will be retained. The personnel is to be materially reduced, the officer corps about one-fifth and the other personnel about one-third.

The period of service for reserves (3,800 men) is 200 days (1914, 360 days), for cadets 260 days (1914, 485 days).

The air force will be made independent as a third fighting unit.

There will be four aviation divisions stationed at Upsala, Vesteras, Karlsborg, and Östersund: the naval planes will be stationed at Vesteras.

The training ships *Najaden* and *Jarramas* will visit Lübeck from June 12 to 16. The armored cruiser *Fylgia* was scheduled to leave the end of May for a cruise in foreign waters, as training ship for naval cadets.

The submarine *Valen* was launched in Karlskrona May 5.

[From the British press]

The first of the two 55-foot coastal motor (torpedo) boats of 38 knots guaranteed speed, built by John L. Thornycroft & Co. (Ltd.) for the Swedish Government, was successfully launched at Hampton-on-Thames on Friday. The armament comprises two 450-millimeter torpedoes, two pairs of machine guns, with depth charges and smoke floats.

Swedish naval vessels are to visit the German ports Kiel and Swinemünde from July 5 to 9. The division visiting Kiel will consist of two armored vessels, four torpedo-boat destroyers, a submarine flotilla, a mine-sweeper flotilla, and an aircraft carrier with airplanes and two auxiliary ships. A torpedo-boat flotilla will visit Swinemünde.

UNITED STATES
RATIFICATIONS OF WASHINGTON TREATIES
(Act of July 7, 1925)

1. Limitation of armaments, February 6, 1922 :
 United States, March 29, 1922.
 Great Britain, August 4, 1922.
 Japan, August 5, 1922.
 Italy, February 16, 1923.
 France, July 28, 1923, with reservations. Ratifications exchanged at
 Washington August 17, 1923, with reservations.
2. Submarines and noxious gases, February 6, 1922 :
 United States, March 29, 1922.
 Great Britain, August 4, 1922.
 France, awaiting ratification.
 Italy, February 16, 1923.
 Japan, August 5, 1922.
3. Insular possessions in Pacific, December 13, 1921 :
 United States, March 24-27, 1922.
 Great Britain, August 4, 1922.
 France, August 17, 1923.
 Japan, August 5, 1922.
4. Declarations account treaty No. 3 (Mandated Islands), December 13, 1921 :
 United States, March 24-27, 1922.
 Great Britain, August 4, 1922.
 France, August 17, 1923.
 Japan, August 5, 1922.
5. Supplementary treaty No. 3 (Karafuto, Sakhalien, etc.), February 6, 1922 :
 United States, March 24-27, 1922.
 Great Britain, August 4, 1922.
 France, August 17, 1923.
 Japan, August 5, 1922.
6. Principles and policies concerning China, February 6, 1922 :
 United States, March 30, 1922.
 Belgium.
 Great Britain, August 4, 1922.
 China, April 29, 1922.
 France, ratified by Chamber of Deputies, July 7.
 Italy, February 16, 1923.
 Japan, August 5, 1922.
 Netherlands.
 Portugal has ratified.
7. Chinese customs tariff, February 6, 1922 :
 Action same as above, No. 6.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

LIBRARY OF THE
RECEIVED
AUG 4 1925
ARMY WAR COLLEGE

MONTHLY INFORMATION BULLETIN

SUPPLEMENT NUMBER 2

JULY, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.



FOR OFFICIAL USE ONLY

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

SUPPLEMENT NO. 2—JULY, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

CONTENTS

| | Page |
|---|------|
| I. ADVANCE ARRANGEMENTS IN WASHINGTON----- | 1 |
| II. SEATTLE TO DUTCH HARBOR----- | 3 |
| III. DUTCH HARBOR TO ATTU----- | 8 |
| IV. ATTU TO TOKYO----- | 9 |
| V. TOKYO TO KAGOSHIMA----- | 17 |
| VI. KAGOSHIMA TO SHANGHAI----- | 21 |
| VII. SHANGHAI TO HONGKONG----- | 22 |
| VIII. HONGKONG TO CALCUTTA----- | 23 |
| IX. ARRANGEMENTS FOR THE PASSAGE OF THE ATLANTIC----- | 27 |
| X. BROUGH TO REYKJAVIK----- | 27 |
| XI. REYKJAVIK TO BOSTON----- | 30 |

)

This is the second of a series of supplements to the MONTHLY INFORMATION BULLETIN which it is proposed to issue from time to time as suitable articles come to hand. By this means it is hoped that the "Office of Naval Intelligence" may supply the medium, hitherto largely nonexistent, for circulating to the forces afloat those articles upon service topics which, while valuable and interesting, are also confidential, and therefore unsuited for publication in the regular service journals or in the Naval Institute, and which because of their length can not be included in the regular issues of the BULLETIN.

(IV)



U. S. S. POPE'S WHALEBOAT STANDING BY PLANE AT KUSHIMOTO

(Army Air Service Photo)

(See p. 20)

THE NAVY AND THE COAST GUARD IN THE WORLD FLIGHT

By Lieut. Commander H. H. Frost, U. S. N.

I. ADVANCE ARRANGEMENTS IN WASHINGTON

As a result of conferences between the War Department and the United States Coast Guard it was decided that the assistance of two of the Coast Guard vessels assigned to duty in the Bering Sea would be required by the flight in its passage along the Aleutian Islands and in crossing to the Kurile Islands, the actual cooperation beginning at Dutch Harbor.

On January 25, 1924, the Secretary of War officially informed the Navy Department of the detailed plans for the world flight by the Army Air Service. He stated that the crossing of the Pacific Ocean by way of the Aleutian Islands and Japan would require considerable assistance from water craft, which the Coast Guard had offered to provide. He added that if any naval vessels were cruising in the vicinity of the Aleutian and Kurile Islands or in the Yellow Sea, China Sea, Gulf of Siam, and the Bay of Bengal during the passage of the flight it would be of distinct advantage to the flight commander to know the positions of such ships in order that he might ask their assistance if necessary. He also stated that as facilities for communication did not exist along the route to be followed in crossing the Atlantic by way of Greenland it might be necessary to ask for naval assistance in those waters.

On February 26 the Secretary of the Navy directed the commander in chief, United States Fleet, the commander in chief, Asiatic Fleet, and the commander, naval forces operating in European waters, to order all vessels in the vicinity of the flight to extend every facility to the aviators.

On March 6 the ambassador at Tokyo reported to the State Department that the Japanese Navy would send two destroyers to the Kurile Islands with 1,000 gallons of gasoline and that the remainder would have to be sent on a chartered steamer. Even with the assistance of both the Japanese authorities and the Standard Oil Co. it had proved practically impossible to find a captain who was willing to undertake the trip due to the hazardous nature of such an undertaking in April or May.

On March 13 the War Department made a detailed statement to the Navy Department, as follows:

(a) The flight would leave Seattle April 1, 1924.

(b) The use of the naval radio station at Dutch Harbor was desired.

(c) Two Coast Guard cutters would accompany the flight through the Aleutian Islands to Kashiwabara Wan in the Kurile Islands.

(d) At Kashiwabara Wan and Bettobu, also in the Kurile Islands, there would be Japanese destroyers with gasoline and oil on board to assist in serving the planes.

(e) A United States destroyer might be required to carry First Lieutenant Nutt, Air Service advance officer in Tokyo, to Kashiwabara and Bettobu, in case he should be unable to take passage on a Japanese destroyer.

(f) The use of two destroyers in the Yellow Sea was requested.

(g) The use of from two to four destroyers in the Atlantic would be valuable.

Four days later the department directed the commander in chief, Asiatic Fleet, to offer Lieutenant Nutt passage to Kashiwabara in a destroyer, provided the Japanese Government would consent; to make two other destroyers available for the passage of the Yellow Sea; and to furnish such assistance as might be requested by the advance officers between Shanghai and Calcutta.

On March 22 the Navy Department was informed by the ambassador at Tokyo, via the State Department, that the Japanese Government had consented, after long negotiations, to allow one United States destroyer to proceed to Bettobu and one to Kashiwabara. On the same day the commander in chief, Asiatic Fleet, who had received a similar dispatch from Tokyo, requested permission to send two destroyers to the Kurile Islands, as the embassy had stated that this was necessary for the success of the flight. On March 26 the department approved this request. On April 1 the *Ford* and *Pope* proceeded from Manila on this mission. In the meantime the Coast Guard cutters *Haida* and *Algonquin* had been selected for the duty of safeguarding the flight from Dutch Harbor to Kashiwabara. They were directed to arrive at Dutch Harbor not later than April 15. The actual plans for cooperation were left to be arranged by the commander, Bering Sea patrol force, Coast Guard, who was directed to take passage on the *Haida*, and Lieutenant Bissell, United States Army, advance officer for this section of the flight, who had proceeded by commercial steamer to Dutch Harbor and thence to Attu on the United States Fisheries gas boat *Eider*, there being no commercial transportation beyond Dutch Harbor. That place was designated as a main repair base.

II. SEATTLE TO DUTCH HARBOR

The four planes comprising the flight were manned as follows:

No. 1, *Seattle*, Maj. F. L. Martin and Sergt. A. L. Harvey.

No. 2, *Chicago*, First Lieut. L. H. Smith and First Lieut. L. P. Arnold.

No. 3, *Boston*, First Lieut. Leigh Wade and Staff Sergt. H. H. Ogden.

No. 4, *New Orleans*, First Lieut. E. H. Nelson and Second Lieut. John Harding, O. R. C.

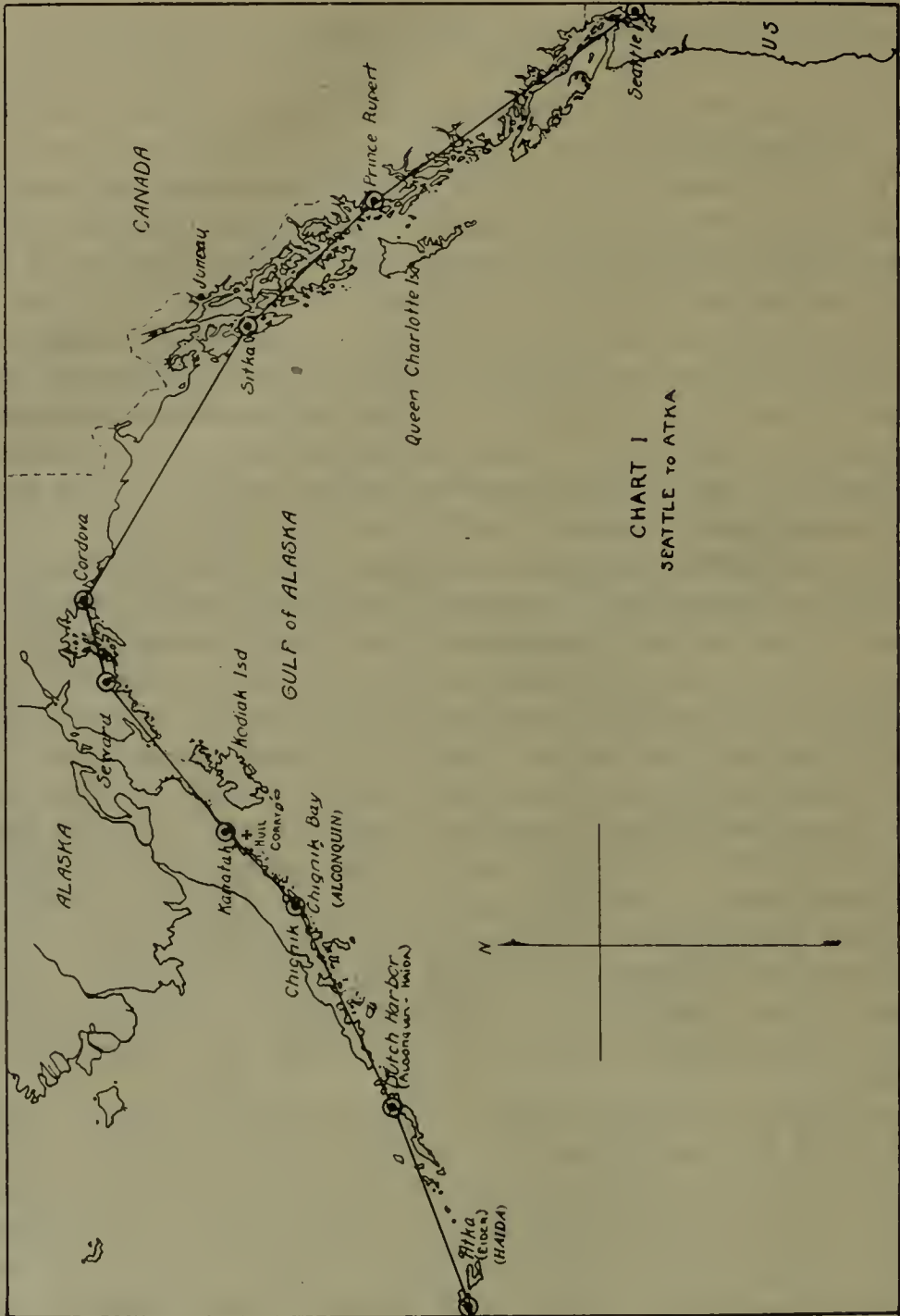
The flight commenced its world cruise from Seattle on April 6. In landing at Prince Rupert, British Columbia, in a snow storm Major Martin broke several wing struts. The distance of 650 statute miles was covered in 8 hours and 10 minutes.

On April 10, Martin's plane having been repaired, the flight took off in the rain and proceeded to Sitka. Distance 282 miles; time 4 hours, 26 minutes. On April 13 a fine flight was made to Seward; 625 miles were covered in 7 hours and 44 minutes. An intermediate landing place had been prepared at Cordova, but it was not necessary to stop there.

On April 6 the *Algonquin* left Astoria for Dutch Harbor. On the same date the *Haida* proceeded from Seattle for Seward with Major Blair, United States Army, a meteorological expert, on board. At Seward were a large number of bulky crates and boxes of aviation stores which it had been intended to ship to Dutch Harbor by the mail boat *Starr*. It has been found impossible to load these stores, including wing panels and pontoons on the *Starr*. The *Haida* took them on board and carried them, ready for emergency use while assisting the flight. *Algonquin* and *Haida* arrived at Dutch Harbor on the forenoon of April 15. During this cruising the two cutters passed through gales with heavy snow. Upon arrival it was found that moorings had already been laid for the planes. They consisted of 500-pound blocks of concrete with a rather short scope of line to 100-gallon gasoline drums painted yellow.

Snowstorms delayed the flight at Seward until the 15th. One of the planes then had difficulty in getting off the water, but at 10.05 a. m. all the planes were in the air and proceeded toward Chignik. Nelson was designated flight leader. During the flight, while flying into a strong head wind, Major Martin's plane was seen to head toward Portage Bay. As the other planes had little excess fuel they continued on to Chignik, requiring 6 hours and 38 minutes to make good 425 miles. Lieutenant Smith, immediately after landing at 4.25 p. m., sent a dispatch via the radio station at Chignik to the *Hull* and *Corry*, which were on survey duty in the vicinity, requesting them to search for the missing plane.

At 7.30 p. m. the *Hull* and *Corry*, immediately upon receipt of this dispatch, proceeded at full speed to search for Major Martin. At daylight the ships arrived off Portage Bay after having averaged 31 knots over the ground through the night. Fortunately the



weather was fine and the sea calm, the only time such weather was experienced either before or afterwards. The *Corry* commenced to search Kialagavik Bay. As its entrance was closed by a reef which had only 11 feet of water over it, the ship was forced to remain out-



U. S. S. HULL'S MOTOR SAILER TOWING MAJOR MARTIN'S PLANE AT KANATAK
(Army Air Service Photo)

side, while a motor sailer made the search of this large body of water. The *Hull* searched Portage Bay with its motor sailer and at 10.32 located the plane on the beach at Cape Igvak. The boat towed the plane to Kanatak, where there was a small settlement. The *Corry* had difficulty in recalling its boat, which was out of sight behind an island, but finally succeeded by means of a star shell, which set fire to the island; a further delay was caused by the necessity for putting out the fire. After Martin was secure at Kanatak, both destroyers returned to Seward for fuel, arriving on the morning of the 17th.

Upon hearing that the destroyers and the *Starr* were proceeding to Martin's rescue the two cutters at Dutch Harbor made ready to proceed, but deferred sailing until the result of the search by the destroyers and the *Starr* was determined. They were two days' full speed steaming from Portage Bay, while the destroyers were much more available.

On the 17th, in response to a request from Major Martin, the *Algonquin* left for Kanatak with a spare motor and other aviation stores necessary for the repair of his plane.

On April 19 the commander in chief United States Fleet, in accordance with the request of the advance officer at Dutch Harbor, ordered a destroyer to transfer an airplane engine to Major Martin at Kanatak. The *Hull* and *Corry*, having completed fueling at Seward, had proceeded to sea again on the afternoon of the 18th to complete their surveying. At 1 a. m. of the 20th the *Corry* received the dispatch of the commander in chief and proceeded at 20 knots to Sitka. After passing through heavy weather Sitka was reached at 6 p. m. Here it was found that the engine had been shipped to Juneau, and the *Corry* immediately proceeded there, arriving at 9 a. m. the next day. Taking the engine on board, the *Corry* put to sea in a heavy snowstorm and proceeded to Seward for fuel. At about 6 that port was entered in a heavy snowstorm which made navigation extremely difficult. After fueling the *Corry* made a very dangerous night run through fog and gales to Kanatak, arriving on the 24th.

In the meantime the *Algonquin* had arrived at Kanatak at 7 a. m., April 19. From this date until April 25 the crew of the *Algonquin* were employed in landing a motor, spare parts, gasoline and oil, and in assisting Major Martin and Sergeant Harvey in removing the old motor and installing a new one. This was accomplished by working night and day as weather permitted. The personnel of the *Algonquin* included several officers and enlisted men who were familiar with airplanes, and the assistance of these men was very material to the successful accomplishment of the change of motors

and other work on the plane with the primitive facilities which were available. The materials were handled in ship's boats and landed on an open beach. The thermometer was below the freezing point continuously; gales and snowstorms were numerous.

All during the 24th the *Corry* dragged about Portage Bay, being unable to deliver the motor. Early the next morning as the gale moderated the *Corry* went alongside the *Algonquin* and delivered the motor. This mission having been accomplished, the *Corry* sailed for Seattle.

On the 25th Martin's plane was towed from the creek, where the repairs had been effected, with great difficulty and took off for Chignik under adverse weather conditions. As soon as the plane was off, the *Algonquin* followed along its line of flight, receiving word of the safe arrival of the plane at Chignik at 6.40 p. m. One landing had been made en route to check the position and await the clearing away of a protracted snow squall. The *Algonquin* arrived at Chignik at 6.10 a. m., April 26. The plane could not be serviced until April 28 on account of the high wind and sea. On the evening of that day the *Algonquin*, after a conference with Major Martin, stood to the westward to take up a position on the proposed course. The vessel was forced to anchor off Wosnesueski Island to ride out a northwest storm (force 11). It continued on the course to westward on the morning of 30th, receiving word that the plane had proceeded at 11.10 a. m. for Dutch Harbor. The *Algonquin* anchored in its position north of Ikatan Point to report the plane. At 5 p. m. the vessel was forced to proceed to the cannery at False Pass for water, that being the only place where the pipes were not frozen; the ship's supply of water was completely exhausted.

At 7.30 a. m., April 30, Martin's plane not having arrived at Dutch Harbor nor been reported by any of the intermediate points with radio stations, alarm was felt and steps were taken to institute a search. The *Algonquin* was directed to get in touch with all canneries and vessels in the vicinity and request that every available craft be employed. That vessel accordingly proceeded to the eastward over the proposed course of flight. Through the hearty co-operation of the United States Coast and Geodetic Survey ship *Pioneer*, which was at Barolof Bay, Unga Island, en route to False Pass for her summer's work, and the men operating the various canneries, a search of the entire coast line was well under way within 24 hours. This search included the many bays and islands on the Pacific side and also the Bering Sea coast from False Pass to the eastward until search was stopped by ice near Port Heiden.

On April 19 planes 2, 3, 4, had proceeded from Chignik to Dutch Harbor, bucking a headwind all the way and requiring the unusual

time of 7 hours and 25 minutes for the 390-mile flight. Upon arrival the planes were secured to their moorings, which were out of sight of the vessel, and a watch composed of men from the *Haida*, in charge of a warrant officer, was established. Shortly after dark the good weather of the day came to an end; violent williwaws and snow squalls continued throughout the night. During a heavy gust one of the planes dragged into deep water, where the anchor was floated by the mooring buoy. The guard had a hard fight to keep this plane from being smashed on the rocks, the prearranged signal for assistance from the ship not being seen or heard on account of thick snow and howling gale.

A conference was held on the morning of the 20th and, as a result, ways were constructed by the ship's company for hauling the planes out of the water, both to insure their safety while waiting for plane *No. 1* and to facilitate the work contemplated in preparation for the flight to the next repair base in Japan. Advantage was taken of a calm spell and planes *2* and *3* were hauled out and secured. The commercial steamer *Brookdale* was at the wharf discharging cargo comprising the year's supplies for the Alaska Communication Co. The particularly well-adapted gear of this vessel was used to lift plane *4* and land it on the dock for renewal of its motor. The vessel's booms and winches were also used in lifting out the old and lowering the new motor into place and in returning the plane to the water the following morning.

Among the many items of assistance furnished by the Coast Guard personnel was the construction of a stand for balancing propellers, which was used to test and correct the balance of the propeller of each plane. The weather was extremely bad. Every favorable moment was utilized for work on the planes. When plane *No. 4* was put back in the water it was taken to a mooring with the intention of giving the new motor a tryout in the air before the flight was resumed. The weather was so unfavorable that it was concluded to be safer to haul the plane out and secure it with the others. This was done on April 25. That afternoon and night the wind developed gale force with thick snow. The water was backed up by the wind so that the planes, partially supported by the extreme high water, were in great danger of being blown from the ways by the heavy williwaws, notwithstanding they were lashed down with heavy weights at the tail and wings. It was necessary for all hands to haul the planes higher up and resecure them; they were engaged the greater part of the night in this work. Had the planes been at anchor or had not the crew responded to the emergency with a will they would undoubtedly have been seriously damaged if not completely wrecked during this gale.

As the search for Martin had thus far been unsuccessful, the *Haida* was ordered to make an offshore search to the southward of Sanak and Shumigan Islands. The *Eider* proceeded to Atka to receive the flight there.

III. DUTCH HARBOR TO ATTU

On May 2 the Chief of Air Service ordered Lieutenant Smith to continue the flight with the remaining three planes. The *Haida* was ordered to return to Dutch Harbor. The *Algonquin* remained to continue the search for Major Martin, who, with Sergeant Harvey, eventually reported in at Port Moller. This search prevented the *Algonquin* from further assisting the flight through the Aleutian Islands.

On May 3 the planes flew to Atka, making the distance of 365 miles in 4 hours and 19 minutes. They arrived just ahead of a snowstorm, which would have made the location of their moorings difficult. After securing the planes, the *Eider* left immediately for Attu with Major Blair on board. On the 4th the *Haida* arrived at Dutch Harbor, filled with fuel and water to capacity, and proceeded for Atka, arriving on the 5th.

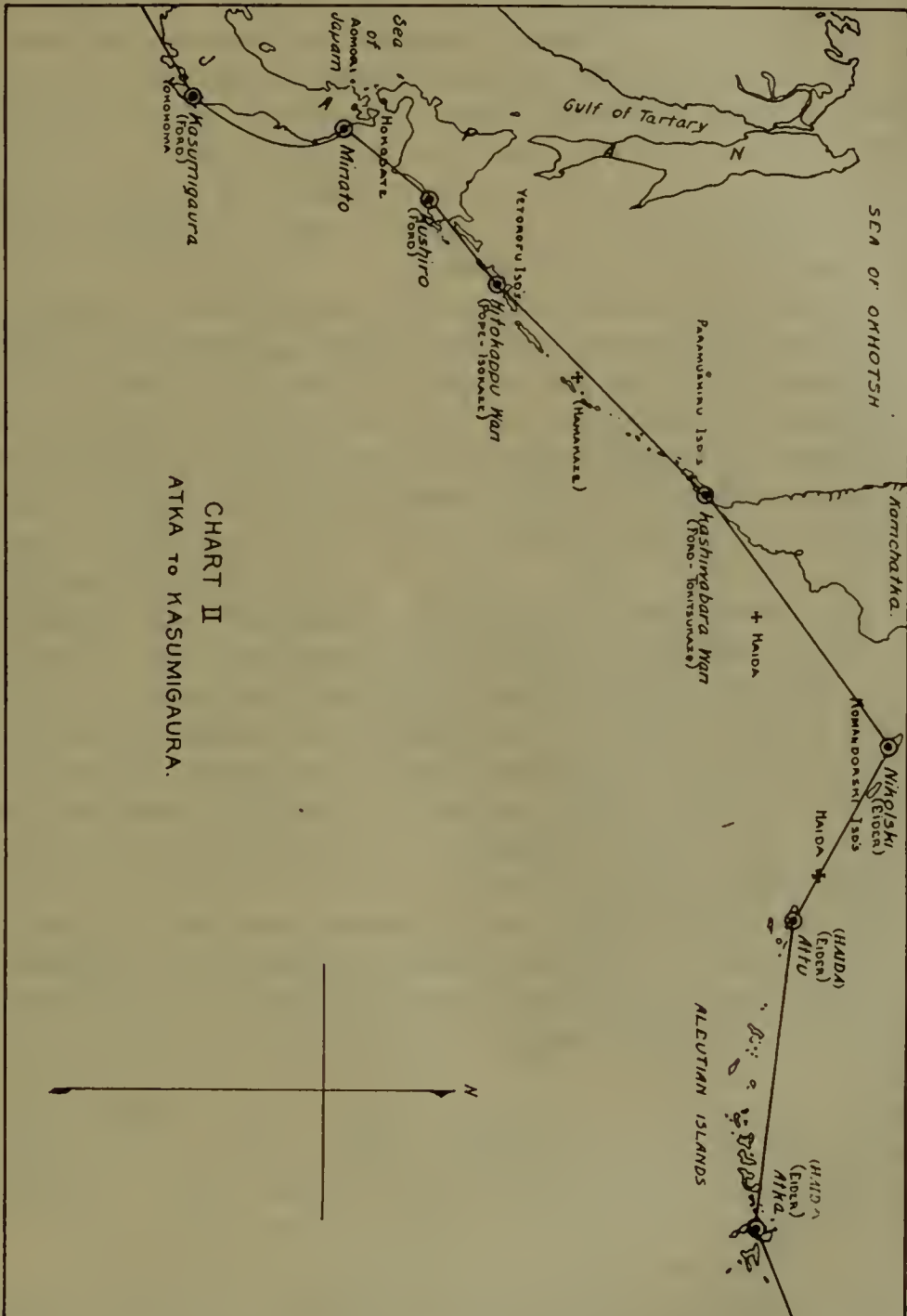
The flight was delayed at Atka awaiting the arrival of the *Eider* at Attu and by adverse weather conditions. During the stop at Atka the planes were serviced by Coast Guard personnel in small boats under very adverse weather conditions, and it was often found necessary to suspend boating, shift anchorage, and stand by to go to sea on account of the weather. Great difficulty was experienced in communicating with the *Eider*, as that vessel was beyond the range of efficient operation of her low-power radio outfit. The absence of the *Algonquin* was a great handicap and added to the danger of this part of the flight.

On May 9 the flight to Attu was made. The distance of 555 miles was made in 7 hours and 52 minutes.

The *Haida* remained long enough to pick up the moorings and then proceeded for Attu at full speed. Head winds, snow, and mist were encountered; the *Haida* arrived and anchored in the outer anchorage 5.45 p. m., May 11. This anchorage provides little or no protection from anything but southerly weather; the holding ground is rocky and poor. An improvised radio outfit, which had been constructed by the radio force of the *Haida* from material furnished by the Army and the ship, was taken ashore, set up, and operated by ship's force. On May 12 the planes were serviced by the ship's force and prepared for their next flight.

IV. ATTU TO TOKYO

After it had been determined that Japanese destroyers could not carry the necessary stores to the Kurile Islands, and it had proved impracticable to charter a private vessel for the purpose, chief



dependence had been placed on the Navy. On April 1 the *Ford* and *Pope* sailed from Manila to carry out this mission, having had three days to prepare for their long cruise. They were "Cramp" boats with about 5,000 miles endurance at economical speed, and, except

for the poor condition of the *Pope's* condensers, were well suited for independent duty over a thousand miles from the nearest fuel supply.

All the way from the northwestern point of Luzon the northeast monsoon was bucked. The heavy wind, averaging force 6; the overcast weather, permitting only one sight in four days; the rough sea, caused by the wind blowing against the Japanese current; and the low visibility off the Japanese coast; all provided a prelude worthy of future Kurile experiences. In addition, the *Pope* had continual condenser trouble, steaming on one engine 28 hours out of 83. Her performance was all the more creditable in that no report of these difficulties was made to the detachment commander on the *Ford* until after arrival at Yokohama.

On April 7 the destroyers arrived at Yokohama in the late afternoon. After a brief conference with Lieutenant Nutt it was decided, although the flight had left Seattle only the day before, to sail for the Kuriles at noon, April 10. It was expected that the planes might arrive at Kashiwabara by the 18th. The intervening time was spent in filling to capacity with oil and provisions, in taking on board stores for the planes, and in making the various arrangements for the flight. The conferences of the commanding officers with our military and naval attachés, diplomatic and consular officials, officers of the Japanese Navy Department, and Lieutenant Nutt, the advance officer of the flight, were most cordial. Cooperation was perfect, and there was complete agreement on each point by all concerned. The Japanese officers emphasized the difficulties of operating in the Kuriles at such an unusually early season and stated that they could not promise that their destroyers would enter the Kuriles until about April 20.

The following aviation stores were loaded on each destroyer: Two thousand gallons of aviation gasoline in 5-gallon tins, 200 gallons of lubricating oil in 5-gallon tins, four Japanese 150-pound anchors for mooring the planes, and several large boxes of tools and spare parts.

In accordance with conditions laid down by the Japanese Government, one Japanese Army officer and one Japanese naval officer took passage on each destroyer. One United States Army officer took passage on each destroyer to represent Lieutenant Nutt.

On April 10 the *Ford* and *Pope* proceeded from Yokohama for Bettobu anchorage on the northwestern coast of the Island of Yotorofu, the air base agreed upon by the Japanese Government. On April 12 the destroyers entered Kurile waters and headed for the passage south of Yotorofu. In the afternoon this passage was found to be completely blocked by a large solid ice field, probably

20 feet thick. In addition to blocking the passage this ice field extended some 50 miles into the Pacific from the southern end of the island. Most of the night was spent skirting this irregular field to the northward, dodging loose floes off the edge of the field. In the morning the passage to the north of the island was discovered to be blocked by another ice field which extended about 20 miles into the Pacific. This field was now skirted to the southward and Yetorofu Island was reached between the two fields. As the passages at both ends of the island were filled with field ice coming through from the sea of Okhotsk, it was certain also that Bettobu anchorage would be filled with ice. It was therefore necessary to select another air base. Course was set for Hitokappu Wan, a poorly protected bay on the southeastern coast of Yetorofu; permission was granted by the Japanese officers to anchor there temporarily. Soon after anchoring information was received that the entire northwestern coast of Yetorofu was covered with ice fields. This definitely eliminated Bettobu as an air base. The detachment commander therefore asked the naval attaché at Tokyo to request the permission of the Japanese Government for shifting the air base to Hitokappu; this was promptly granted by a dispatch received on the 14th.

On the evening of the 14th three Japanese destroyers of the 18th flotilla stood in and anchored at Hitokappu, having received dispatches from the *Ford* stating the position of the ice fields around Yetorofu and the arrival of the *Ford* and *Pope* at Hitokappu.

On the 15th, after having received some fuel from the *Pope*, the *Ford* proceeded toward Kashiwabara. After skirting an ice field on the first afternoon and passing through continual fog or low visibility Kashiwabara was reached early on the 17th. This anchorage is a slight indentation in the strait between Paramushiru and Shimushu Islands. As a storm was just commencing with the wind and sea coming into the strait, the *Ford* passed through and anchored in the lee of Shimushu at Cod Bay. This afforded excellent protection from the storm until the wind shifted during the night to the northwest, when it was necessary to get under way and stand off the coast until daylight. The *Ford* then anchored at Kashiwabara where there was now a good lee. Later in the forenoon the *Tokitsukaze*, the flagboat of the 18th flotilla, arrived and anchored near the *Ford*. Communication was established with the flight via naval radio, St. Paul, Pribiloff Islands, and with the destroyers in Japanese waters. Radio schedules were established by agreement between the commander 18th flotilla and the detachment commander. Press news broadcasted from San Francisco and Hawaii kept the ships in good touch with the progress of the flight. As this was be-



ing delayed beyond all expectations, food and fuel was expended most economically. No heavy storms were experienced by the *Ford* after the one on the day of its arrival, but the weather was extremely variable and strong winds sprang up without warning from all directions. The *Pope* was not so fortunate, for during a very severe storm on April 26 and 27, she dragged first with 90 fathoms of chain on one anchor; again with 90 on one anchor and 15 on the other; and finally with 90 fathoms on one anchor and 45 on the other; in all cases the depth of water was only 4 to 6 fathoms.

On April 30 H. M. Canadian ship *Thiepsal* stood in and anchored near the *Ford* at Kashiwabara, having completed an adventurous cruise through the Aleutian Islands, Komandorski Islands, and along the Kamchatka coast laying down stores for the British flight. Cordial relations were entered into with Colonel Broome, Royal Air Force Reserve, and the Canadian officers. The *Ford's* motor sailer laid down Colonel Broome's mooring and supplies at Murakami Wan, about 3 miles from the anchorage at Kashiwabara. Two gasoline drums were also furnished to hold his gasoline supplies. The colonel amply repaid this assistance by the valuable information he furnished concerning the Kurile Islands, which he had been studying for many years from the viewpoint of aerial navigation.

By May 1 it became evident to the detachment commander that steps should be taken to replenish both food and fuel. Although there was still enough to last for some time, the planes were being held at Dutch Harbor while search was conducted for Major Martin, and a long wait appeared probable. It was also desirable to have the maximum fuel on hand, because if a plane was forced down between Attu and Kashiwabara it would be necessary to make a search for it at high speed. Therefore the detachment commander ordered the *Pope* to Kashiwabara to relieve the *Ford* and requested the commander, Division 43, to dispatch a destroyer to Hakodate, from which the *Ford* might obtain fuel and food.

On May 3 the *Pope* arrived at Kashiwabara and went alongside the *Ford*; all excess food and fuel were transferred to the *Pope* and the *Ford* proceeded toward Hakodate. The next morning press news announcing the arrival of the planes at Atka was received. After a cruise through alternate rough seas and dense fogs the *Ford* arrived at Hakodate at noon May 6. During the afternoon the *Peary* and *Trurston* arrived from Kobe and transferred their excess fuel and large quantities of provisions.

In the late afternoon of the next day the *Ford* again proceeded toward Kashiwabara. During the 6th and 7th the *Pope* experienced a very heavy gale at Kashiwabara; anchors dragged four times, and it was necessary to keep under way practically all both

nights in restricted unlighted waters when the snow was so thick that the shore could not be seen with searchlights a quarter of a mile away. The commanding officer states that had it not been possible to keep position on the searchlight of the *Tokitsukaze*, which fortunately did not drag, his ship would almost inevitably have been wrecked.

On the afternoon of May 9, the *Ford*, while running along the Kurile Chain, met a second very heavy storm which continued for two days. For two entire nights it was necessary to lie to into the sea at 5 knots. The ship rolled a maximum of 53° on a side during the second night. On the 10th this storm reached the *Pope*, which commenced dragging with 105 fathoms on one chain and 60 on the other and was able to prevent further dragging only by going ahead with about 30 turns on both engines. A Japanese steamer of about 1,000 tons was wrecked at Murakami Wan, 3 miles from Kashiwabara, with the loss of nine men frozen to death. The barometer stood steady at 28.83 for over 48 hours during this storm.

On May 11 the *Ford* and *Pope* met at Kujira Wan, on the northwestern coast of Paramushiru, where there was a lee from the storm. The provisions were divided equally between the two vessels, and in the evening the *Pope* left for Hitokappu. Information was received that the flight had arrived at Attu on the 9th. Early on the 12th the *Ford* arrived at Kashiwabara. The *Tokitsukaze* and *Hamakaze* were in port. The latter vessel, together with the *Amatsukaze*, had refueled and provisioned the *Tokitsukaze* on May 9. The *Ford* also transported some provisions for the *Tokitsukaze* from Hakodate. This is only one illustration of the perfect cooperation between these vessels at Kashiwabara.

On May 12 and succeeding days the *Ford* reported to the flight commander via the *Haida* that weather conditions were now excellent and that all was in readiness to receive the planes. The moorings were laid out in the most protected location for the prevailing winds. The Japanese anchors were in the form of four-pronged grapnels and their holding power was increased by lashing a 100-pound rock to the bottom of each anchor. Arrangements were made to haul out the planes on the snow should this be required. In accordance with a request made some time previously by the detachment commander the Japanese Government granted permission to use Lake Tashimoya, about 2 miles inland from Hitokappu Wan, as an air base. This was a very important change of plan, based partly on the investigations of the commanding officer of the *Pope* and partly on suggestions by Colonel Broome. It is doubtful whether the planes could have used Hitokappu on account of the constantly heavy swell. Most thorough preparations were made

by the *Pope*; a wherry, a punt, and a life raft were transported to the lake; anchors were planted; fuel and spare parts were made ready for use on the planes; wind indicators were set on poles.

The original plans had called for a flight direct from Attu to Kashiwabara, but as this was considered rather beyond the safe range of the planes, it was decided to interpose an emergency stop at Nikolski in the Komandorski Islands. On the 12th, therefore, the *Eider* proceeded toward that place with gasoline, oil, and the set of moorings which the *Haida* had picked up at Atka. Lieutenant Bissell was on board. Major Blair returned to the *Haida*.

On May 13 the flight commander suggested to the detachment commander that landing places along the Kamchatka coast be investigated. The detachment commander replied that he did not feel justified in entering Soviet waters for such a detailed investigation, which moreover would have much reduced his fuel supply, but stated that he was prepared to come to the assistance of any plane which landed in Soviet territory.

On the 13th the *Haida* was forced to put to sea to ride out a severe gale. The barometer dropped very suddenly to a low of 28.60 and then rose with equal rapidity. The wind went around the compass and a very heavy cross sea was encountered. This apparently was the same storm which the *Ford* and *Pope* had passed through in the Kuriles. Fortunately it was almost completely missed by the *Eider*. At 3.10 p. m., May 14, the *Haida* returned to Attu.

On May 15 reports from the *Eider* at Nikolski and local conditions indicated favorable weather for the flight and final preparations for it were made. The *Haida*, leaving the radio party on shore, proceeded on the course to Nikolski. At 11.40 a. m. word was received that the planes had taken the air. At 12.30 p. m. the planes passed over the *Haida* and after circling stood on the course. At the time a cross breeze of between 15 and 20 miles force was blowing, but the planes went out of sight on the exact bearing of the nearest point of the Komandorski group. The distance of 350 miles was made in 5 hours and 25 minutes. The *Eider* tended the planes overnight and refueled them. As there was poor protection from bad weather, it was fortunate that they were able to have a quiet night and two good flying days in succession. On the next day the flight proceeded toward Kashiwabara. The *Ford* was not notified of this flight. The distance of 585 miles was made in the good time of 6 hours and 55 minutes, the latter half being through snow, rain, and fog.

The *Haida* arrived at Nikolski shortly after the planes had left. After taking on board Lieutenant Bissell the ship proceeded along

the line of flight until a message announcing the arrival of the flight at Kashiwabara was received.

The assigned duty of the *Haida* having been accomplished, that vessel returned to Dutch Harbor in obedience to order of the force commander. The *Eider* called in at Chicagof, Attu, picking up the *Haida's* men and radio outfit and all the moorings but one, which was left for the use of the British flight. The *Eider* then proceeded to Dutch Harbor via Atka.

As there was no commercial transportation available, the *Haida* transported to Seward all the spare pontoons, wing panels, engines, and other aviation materials which were on board or stored at the repair base at Dutch Harbor. These stores were landed at Seward on June 3 and shipped to the east coast for use in Labrador.

As the planes arrived at Kashiwabara a storm was commencing and the conditions for mooring the planes were very bad. The moorings had been placed for the prevailing westerly winds, and they were now exposed to the strong easterly wind and partly exposed to the heavy sea which built up in the poorly protected anchorage. The storm was accompanied by dense snow. Due to the fact that the *Ford* did not know that the planes had left Attu until they were actually sighted from the ship there was no opportunity for shifting the moorings, even had this been desirable. Wade and Nelson landed at the prepared moorings, and the *Ford's* motor sailer assisted them in securing their planes. Smith landed on the other side of the strait and secured to Colonel Broome's mooring at Kataoka, which was out of sight from the ship. This plane had the best lee for the existing conditions; but had the wind shifted, as is usual in the storms in this vicinity, it would have been in a very exposed position, particularly as there was no anchorage for a ship near it. After planes 3 and 4 were secured at Kashiwabara the ship got under way in a heavy snowstorm and proceeded to Kataoka, took on Smith and Arnold, saw that the plane was secured, and returned to Kashiwabara. It was impracticable to send a motor sailer across the strait, due to the dangerous tide rips and 6-knot current. As the planes at Kashiwabara had been reduced to two and four anchors and buoys were available, additional anchors and buoys were placed on both planes. The storm continued for about 30 hours. The wind was force 7-8, the snowfall heavy, and the sea so rough that the ship rolled about 15° on a side and dragged gradually all during the night. The sea was not so rough where the planes were, but the searchlights showed them to be pounding heavily. The flyers stated that the planes were in the heaviest seas thus far encountered. Signalmen reported that they could see Smith's plane at clear intervals during the forenoon; it later developed

that these reports must have been erroneous, as intervening land lay between the plane and the ship.

On the afternoon of the 18th the weather moderated and it was possible to lower a boat. The wire bridles of the planes were badly chafed; one bridle had only one strand out of seven still holding, and had the storm continued a few hours longer this plane would have been washed ashore and destroyed. New bridles were made and given to the planes. The *Hamakaze*, which proceeded down the island chain to report weather conditions, passed close to Smith's plane at Kataoka and reported that it was still in position.

At 2 a. m. May 19 the flight commander, having examined the hourly weather reports from the *Pope* and *Hamakaze* and the reports of the Japanese Weather Bureau transmitted via the *Tokitsukaze*, decided to make the flight to Hitokappu that day. After the two planes at Kashiwabara had been fueled, their personnel was assisted by the *Tokitsukaze* while the *Ford* proceeded to Kataoka and refueled Smith's plane. At 7.35 a. m., after an exchange of smoke rockets, all planes started simultaneously and proceeded in formation. After receiving on board the anchors and moorings, which the *Tokitsukaze* had most kindly picked up, the *Ford* proceeded along the line of flight to Hitokappu. The planes made an excellent flight in hazy and foggy weather with a strong cross wind, covering the distance of 595 miles in 7 hours and 20 minutes. They were secured to their buoys on the lake and fueled the same day.

On the 20th dense fog prevented the flight from Hitokappu. The *Ford* arrived there that evening and, after an hour's stay, left for Kushiro, permission having been granted by the Japanese officers to use that port as an emergency base. At noon of the 21st the *Ford* arrived at Kushiro, commenced sending weather reports to the *Pope*, and made arrangements for mooring and fueling the planes.

On the 22d, the fog having cleared at Hitokappu, the flight proceeded with moderately good flying conditions, passed the *Ford* at Kushiro, and landed at 10.30 in long swells at Minato. After refueling, they took off again at noon and made a fine flight to the Japanese naval air station at Kashumigaura, near Tokyo. This day they had covered 835 miles in 10 hours, a fine record.

The *Ford* and *Pope* now proceeded to Aomori, where the *Pope* fueled, and rejoined the Fifty-third Division at Yokohama. Full-power runs were made en route.

The destroyers of the Eighteenth Flotilla were of great assistance to our destroyers while in the Kurile Islands.

V. TOKYO TO KAGOSHIMA

The commander, Division Forty-three, was responsible for providing the necessary assistance for the flight from Tokyo to Kagoshima.

On April 10 the *Pillsbury*, *Truxtun*, and *Paul Jones* had proceeded from Manila to Yokohama to carry out this mission; the *Peary* sailed four days later; the *Ford* and *Pope* were already in Japanese waters. On April 15 the *Pillsbury*, *Truxtun*, and *Paul Jones* arrived at Yokohama; on the 19th the *Peary* arrived. All ships fueled to capacity.

On April 28 the division proceeded to Kobe to wait until the arrival of the flight in the Kuriles.

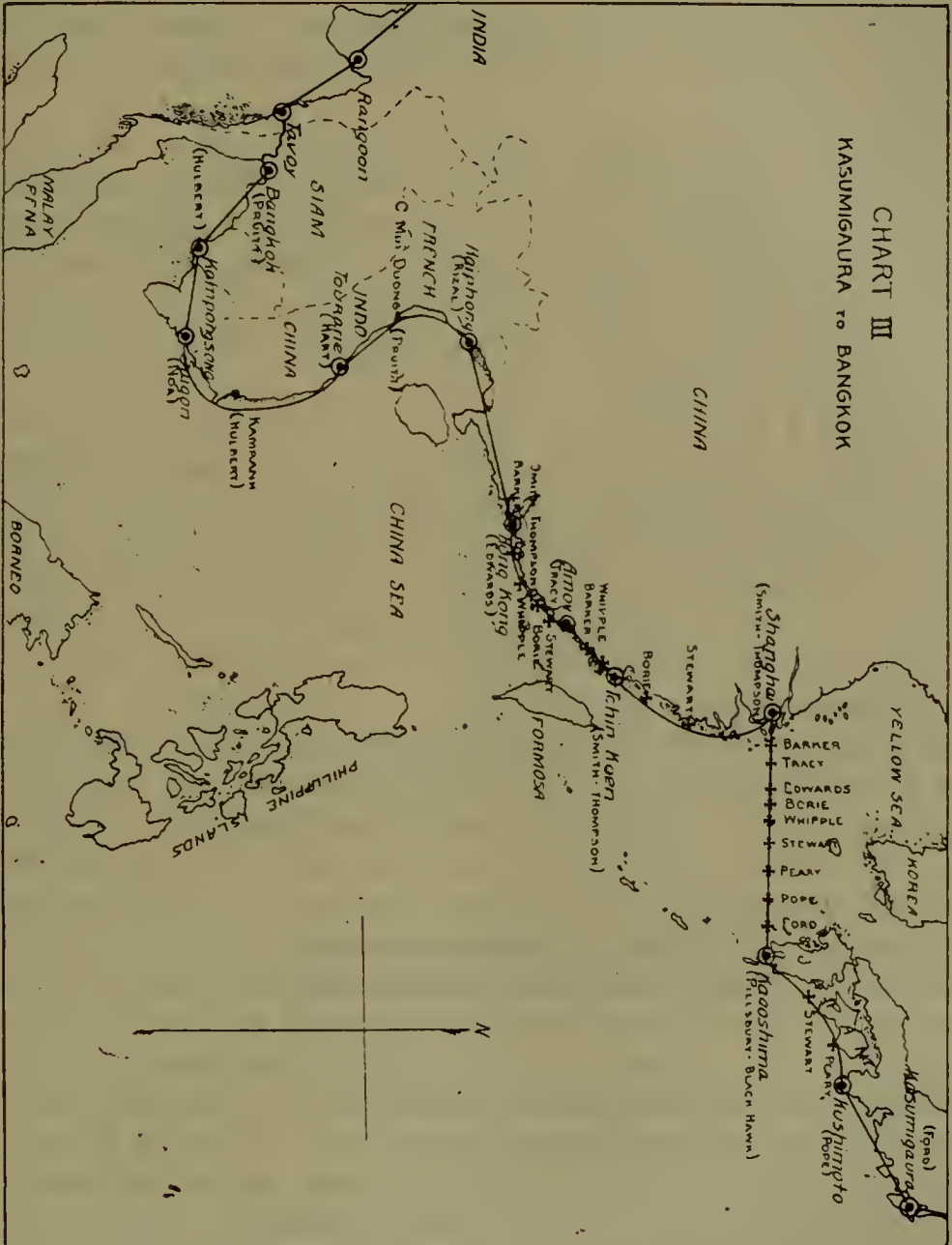
On May 3 the division commander received a request from the *Ford* to send a destroyer to Hakodate to supply fuel and provisions. He proceeded the next day with the *Peary* and *Truxtun* after taking on fuel and provisions from the other destroyers and additional fresh provisions from the shore. The trip was uneventful except for the usual storm off the Kii Promontory.

On May 6 the *Peary* and *Truxtun* arrived at Hakodate and transferred fuel and provisions to the *Ford*. On the 7th the *Truxtun* sailed for Manila via Shanghai. After the departure of the *Ford* for Kashiwabara the *Peary* returned via the Sea of Japan and Inland Sea to Kobe, arriving on the 10th.

On the 18th word was received of the arrival of the flight at Kashiwabara, and on the next day the *Peary*, *Pillsbury*, and *Paul Jones* fueled at the Standard Oil plant at Itozaki, returning to Kobe on the 20th. On May 21, having heard of the arrival of the flight at Hitokappu, the division proceeded to Yokohama, arriving during the forenoon of the 22d; in the afternoon the planes arrived at Kasumigaura. During the next days, while the planes were overhauling, arrangements were made by the division commander for safeguarding the flight to Kagoshima. On the 25th the *Ford* and *Pope* rejoined the division.

On the 25th the division commander was informed by Lieutenant Smith that Colonel Broome, in charge of the British world flight, had received a dispatch from Akyab, Burma, to the effect that the British plane had been wrecked there. Colonel Broome had a spare plane at Hakodate on board the *Thiepval*, and stated that he would be thankful for any assistance our Navy could afford him to transport this plane to Akyab. The division commander requested permission from the squadron commander to transport the plane in a destroyer to Hongkong for further passage in a destroyer of Division 45 to Akyab. Both the squadron commander and the commander in chief immediately approved this suggestion. Action was withheld until the 28th in accordance with the request of the British naval attaché at Tokyo; on that date the *Paul Jones* proceeded to Hakodate, loaded the plane on board, and carried it to Hongkong, arriving on June 3. The plane was transferred to the *Preston*, which carried it to Akyab, where it was delivered to the British

world flight on June 13. This service, which was accomplished in a remarkably short time, was greatly appreciated by the British throughout the Far East and did much to raise the prestige of the United States. Colonel Broome sent the following dispatch to the commander in chief:



Please accept sincere thanks of personnel of British flight for most timely and generous help of your Navy and splendid sporting spirit shown.

On the 27th the *Pillsbury* sailed to take station at Kagoshima. On the 28th the *Pope* proceeded to take station at Koshimoto at the tip of the Kii Promontory, permission having been granted by the Japanese Government. She carried anchors, buoys, and gaso-

line remaining from the Kurile flight. It had been the original plan for the *Ford* to take station at Shimoda, but as the flight commander requested a destroyer to transport two pontoons with the flight, the *Ford* remained at Yokohama for this duty and also to transmit weather reports from the other destroyers to Kasumigaura and maintain liaison with the flight. On the 29th the *Peary* sailed to take station off Muroto Zaki, between Kushimoto and Kagoshima. A heavy storm was encountered, compelling reduction of speed to 8 knots.

The *Peary* arrived at her station early on the 30th. The *Stewart*, temporarily assigned to the division, took station between the *Peary* and Kagoshima. All ships commenced sending weather reports to the *Ford*. These reports were summarized on board that vessel and forwarded by telegraph to the flight commander at Kasumigaura. He also received weather reports through the Japanese weather bureau.

On June 1 at 5.30 a. m. the flight took off for Kushimoto, making the distance of 305 miles in 4 hours and 35 minutes. The weather was very bad and as soon as the planes had secured to the buoys, laid out in accordance with Lieutenant Nutt's instructions by Japanese naval personnel on the west side of the bay, and stopped their engines, all three commenced to drag toward the beach, two of them being driven into the breakers before they could start their engines and clear away their moorings.

In the meantime one of the *Pope's* boats laid three new moorings, but a shift of the wind to the eastward made the sea so rough that they could not be used. The planes then began to taxi to the east side of the bay in order to get a better lee. The vessel got under way and proceeded ahead of them, laid out three more moorings, and secured the planes. The three moorings which had been laid down by the *Pope's* boat on the western side of the bay were recovered and a second anchor, with a scope of 60 fathoms, was planted for each plane. It was too rough to refuel the planes: the native boatmen hired for this purpose could not be induced to put out either on this or succeeding days. All went well until 10.30 p. m., when a large whaling vessel dragged down toward Smith's plane. The motor sailer hove up the plane's anchors, towed it out of danger, and replanted the anchors. One of the other planes also dragged gradually and the ship itself dragged for the tenth time in six weeks.

On the afternoon of June 1 the *Ford* proceeded from Yokohama for Kagoshima with two pontoons stowed on deck. The breaking of a condenser tube compelled speed to be reduced to 50 revolutions on one engine in the storm which now covered the southern coast of

Japan. The *Peary* commenced to drag during the night and had to get under way and stand off the coast.

By 9.30 a. m. the next morning the storm subsided sufficiently at Kushimoto to allow the planes to be refueled, but it was still very rough outside. Eight knots was the best the *Ford* could make into the head sea without heavy pounding. It was found that the planes had suffered only slight damage; according to their personnel, it was the heaviest weather they had thus far met in port, even worse than at Kashiwabara. At 12.50 p. m. the flight took off for Kagoshima in a 40-mile head wind. The coast line was followed, the planes passing over the *Peary* and *Stewart*. Wade's plane was forced to land in a well-protected harbor, due to loss of circulating water; he filled his radiator with salt water while the other planes circled and then proceeded again with them. At 7.01 p. m. the planes landed at Kagoshima and were received by the *Black Hawk* and *Pillsbury*; 6 hours and 11 minutes were required for this short flight of 360 miles.

The *Peary*, *Pope*, and *Stewart* proceeded to take stations for the Shanghai flight; the *Pope* was required to make 21 knots to gain her position in time, and was considerably damaged by the heavy seas.

VI. KAGOSHIMA TO SHANGHAI

The commander destroyer squadron was made responsible by the commander in chief for safeguarding the flight from Kagoshima to Shanghai. He decided to utilize the *Black Hawk*, *Stewart*, and Division 38, in addition to Division 43, which was already in Japanese waters.

These additional vessels had proceeded from Manila, on April 12, to Shanghai, to be in readiness to carry out this mission. On the 30th of April the commander destroyer squadron visited Kobe to discuss the details of the flight with the commander Division 43, returning later to Shanghai.

On May 24 the *Black Hawk* and *Stewart* proceeded to Nagasaki, arriving by the 27th. On the 28th the *Stewart* proceeded to join Division 43 to replace the *Paul Jones*, which was transporting the British plane to Hongkong. On the 30th the *Black Hawk* proceeded to Kagoshima, where the *Pillsbury* was already stationed. After arrival the details for the flight to Shanghai were arranged in a conference with Lieutenant Nutt.

On June 2 at 7.01 the planes arrived at Kagoshima. Their personnel was quartered on the *Black Hawk*. On June 3 the *Ford* arrived at Kagoshima and transferred the two pontoons to the *Pillsbury*, which got under way immediately for Hongkong. By June 4 all was in readiness for the flight to Shanghai. The *Black Hawk*

was at Kagoshima, the *Smith Thompson* at Shanghai, and the remaining nine destroyers were spread between at about 50-mile intervals.

All planes had difficulty in getting into the air with their heavy load of fuel and the lack of wind. At 7.10 a. m. Nelson and Wade took off. After about an hour's unsuccessful efforts to get his plane off the water Smith signaled for them to proceed. The weather was perfect and the flight was without event. The distance of 550 miles was made in 9 hours and 10 minutes, including the time circling at Kagoshima. Each destroyer made black smoke before the arrival of the planes and reported them by radio as they passed. Smith discovered a minor defect in one of his pontoons which was soon remedied. The next day he made the flight in perfect weather and joined the other planes at Shanghai. He reported to the Chief of Air Service: "Navy assistance perfect." Division 38, plus *Stewart*, proceeded to their stations for the flight to Amoy and Hongkong. The *Smith Thompson* remained at Shanghai temporarily to inform the flight commander of these arrangements.

VII. SHANGHAI TO HONG KONG

Commander Division 38 was directed by the destroyer squadron commander to safeguard the flight from Shanghai to Hong Kong.

Upon the arrival of the planes at Shanghai they were secured to mooring buoys near the Standard Oil docks. The U. S. S. *Pigeon* provided their guard. The *Tracy* arrived at Amoy on June 6 and anchored off the Standard Oil docks, where three mooring buoys had already been planted for the planes. The *Edwards* arrived at Hong Kong to act as station ship.

When Lieutenant Smith was shown the arrangements for safeguarding the flight to Amoy, he requested that these plans be changed so that the flight could be refueled between Shanghai and Amoy, due to the difficulty he had been having in getting off smooth water with a full load of fuel. He also desired some other rearrangements of the patrol stations.

The division commander immediately complied with all these suggestions. The *Smith Thompson* was designed to take station at the refueling point, which was fixed at Ping Fong Island (Tchinkoen Bay in Lieutenant Smith's report and on the chart).

On June 6 the *Smith Thompson*, having taken on board three 150-pound anchors, 500 gallons of aviation gasoline, and 40 gallons of lubricating oil, proceeded from Shanghai at 20 knots, arriving at Ping Fong Island at 8 a. m. of the 8th. This area was found to have been very inaccurately charted, but the buoys were laid down in the most sheltered locality. Fortunately the sea was smooth

with a light swell. The flight took off at 7.50 a. m. this day, passed over the *Stewart* and *Borie*, and arrived at 12.20 p. m., having covered 350 miles in 4 hours and 30 minutes. They were secured to the moorings and refueled by the *Smith Thompson*. At 2.40 p. m. the same day the flight took off for Amoy, making the distance of 250 miles in 2 hours and 47 minutes. En route they passed over the *Whipple* and *Barker*.

A guard was established by the *Tracy* over the planes and searchlights were kept on them all night.

A Chinese cruiser flying the flag of the rear admiral, naval governor of Amoy, assisted with this guard over the planes and used her searchlight also on them during the night.

The destroyers took up their new stations between Amoy and Hong Kong in the following order: *Tracy* (at Amoy), *Stewart*, *Borie*, *Smith Thompson*, *Whipple*, *Barker*, and *Edwards* (at Hong Kong). The *Edwards* reported the three mooring buoys in readiness. The usual weather reports were made to the *Tracy*.

It required about one hour and a half to pump out the pontoons of the planes the next morning. At 9.20 a. m. the flight proceeded to Hong Kong, passing through a small storm and over the five destroyers. The time was excellent—3 hours and 24 minutes for the distance of 310 miles.

VIII. HONGKONG TO CALCUTTA

The commander, division 45, was directed by the commander, destroyer squadron, to safeguard the world flight from Hongkong to Calcutta. The commander in chief added the light mine layers *Hart* and *Rizal* to the division for this task. The force assembled at Hongkong about the middle of April and waited for the flight. On May 30 the division commander issued a revised operation order and the ships dispersed to their stations as follows:

May 31—*Rizal* to Haiphong.

June 3—*Preston* to Akyab with British plane.

June 4—*Nicard* to Rangoon; *Preble* to Rangoon.

June 7—*Noa* to Saigon; *Hulbert* to Kamranh Bay.

June 8—*Pruitt* to Bangkok via Cape Mui Duong.

June 9—*Hart* to Tourane.

On June 6 the *Pillsbury* arrived with the two pontoons from Yokohama. They were delivered to division 45.

On June 8 the flight arrived at Hongkong. On June 10 it proceeded to Haiphong in perfect weather. The distance of 495 miles was made in 7 hours and 26 minutes. The *Rizal* furnished the necessary assistance to the planes at Haiphong.

On June 1, due to light air and lack of wind, it was necessary to taxi to the mouth of the river to take off, and this delayed the

start until 11.45 a. m. At 12.53 p. m. the planes passed the *Pruitt* off Cape Mui Duong. All three planes landed in a lagoon about 50 miles short of Tourane due to the motor failure of Smith's plane. The other two planes proceeded on to Tourane, having covered 410 miles in 5 hours and 5 minutes. The *Pruitt* proceeded to Bangkok, after having followed the line of flight at high speed until the safe landing of the planes was reported.

Upon arrival of the two planes at Tourane the commanding officer U. S. S. *Hart*, which was stationed there, asked the *Noa* at Saigon to carry a spare motor, which could be obtained from the advance officer there, to Smith's plane. This was done and the new engine was installed in the plane in 48 hours after the forced landing. On the morning of the 15th Smith flew to Tourane in a 40-minute flight. The *Noa* returned to Saigon via Kamranh Bay, where 20,000 gallons of oil were taken from the *Hulbert*.

On June 16 the planes taxied outside the harbor and took off at 6.01 a. m. At 10.40 a. m. they passed over the *Hulbert* off the entrance to Kamranh Bay. They landed in the Don Nai River below Saigon, having covered 540 miles in 7 hours and 38 minutes. There they were given necessary assistance by the *Noa*. After the planes passed the *Hulbert*, that vessel proceeded at full speed toward Kampongsong Bay. After the planes arrived at Saigon Lieutenant Smith decided that a fueling base was required at Kampongsong Bay and the *Hulbert* was ordered into Saigon. Arriving there at midnight, 500 gallons of aviation gasoline, a pontoon, a propeller, and 10,000 gallons of fuel oil were taken on board. At 4.30 a. m. the *Hulbert* proceeded for Kampongsong, arriving at 6 a. m. on the 18th. The mooring buoys were laid out and arrangements made for the reception of the planes.

On this day the flight proceeded at 6.34 a. m. and landed at 11.02 at Kampongsong. After refueling it proceeded at 12.10 for Bangkok, arriving at 4.18. The distance of 485 miles was made good in 8 hours and 30 minutes. After the *Pruitt* had serviced the planes the whaleboat with a guard was anchored near the planes while the motor sailer kept under way all night to keep native craft clear. The *Hulbert* joined the *Pruitt* at Bangkok.

When the planes arrived at Bangkok the *Preble* and *Sicard* were at Rangoon. As word was then received that the planes would refuel between stops, it was decided to accomplish this at Kalagauk Island. The *Preble* and *Sicard* proceeded there. After their arrival, during the evening of the 19th word was received that the fliers would fuel at Tavoy, and not at Kalagauk Island. The *Sicard* therefore was ordered to proceed to Tavoy while the *Preble* returned to Rangoon. The *Sicard* arrived at Tavoy at 6.40 a. m. of the 20th after a fast run through bad weather.



11527 A.S.

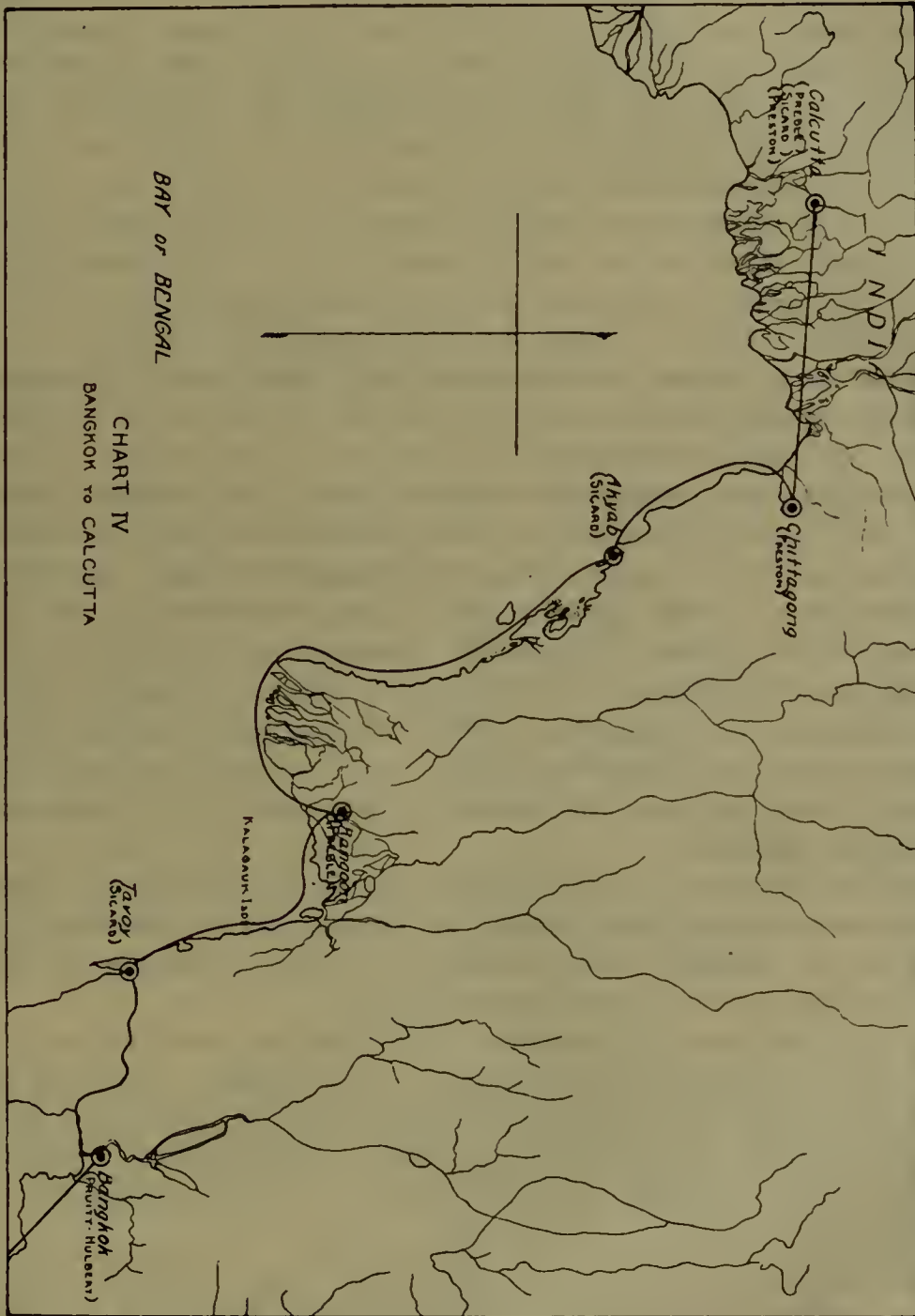
U. S. S. NOA'S MOTOR SAILER SERVICING PLANE AT SAIGON
(Army Air Service Photo)



DESTROYER PERSONNEL ASSISTING IN OVERHAUL OF PLANES AT CALCUTTA

(Army Air Service Photo)

On this day the planes crossed the Malay Peninsula. This flight was a particularly hazardous one. For some 150 miles the planes flew over the land and crossed two mountain chains the peaks of which were from 7,000 to 8,000 feet high. For part of the distance



it might have been possible to have landed on small rivers, but for long stretches an engine failure would have meant the certain loss of the plane. The planes landed at Tavoy at 11.35 a. m. The water was rough and there was considerable difficulty in refueling the planes from the *Sicard*. In taking off two planes broke vertical

wires. The flight was made through rainstorms to Rangoon, where they were received by the *Preble*; 495 miles were covered this day in 6 hours and 3 minutes.

During the night after the arrival of the planes a cargo junk drifted down with the tide toward Nelson's plane. The *Preble's* motor sailer was patrolling around the planes and immediately rammed the junk, fending it off so that only slight damage was done to one wing. The efforts of the boat's crew undoubtedly saved the plane from being completely wrecked. The plane was hauled out of the water and repaired.

While at Tavoy the fliers had decided to refuel at the mouth of the Bassein River, at the southwestern point of the promontory between Rangoon and Akyab, and the *Sicard* had proceeded there with gasoline and oil. After further consideration, however, it was decided to fly direct to Chittagong with Akyab as an emergency fueling station. The *Sicard* relieved the *Preston* at Akyab, that vessel proceeding to Chittagong.

The flight left Rangoon on the 25th, after great difficulty in taking off. Before doing so they had consumed all their excess fuel, thus making it necessary to land at Akyab: there they were fueled by the *Sicard*. Four hundred and eighty miles were covered in 5 hours and 38 minutes. The *Preble* proceeded to Calcutta.

The next day the planes left Akyab and flew through a number of rainstorms to Chittagong. After being refueled by the *Preston* they proceeded the same day to Calcutta. A total of 435 miles were covered in 5 hours and 27 minutes. The *Sicard* and *Preston* proceeded to Calcutta.

On the 27th the *Preble* and *Sicard* arrived at Calcutta, and after a conference it was decided to shift the planes to a new location; they flew to the Maidan, a park near the destroyer anchorage. The *Preston* arrived at Calcutta later in the day.

On the 28th motor sailers towed the planes to a crane furnished by the city, which hoisted them ashore on the Maidan. Working parties of 40 men were furnished by the destroyers to assist in the replacement of the pontoons by landing gear. These men performed very valuable services. On July 1 the planes left for Allahabad.

The mission of the Asiatic Fleet had been accomplished with entire success. Twenty-one vessels had been employed through a period of 77 days. Over 88,000 miles in all were steamed by vessels engaged in safe-guarding the flight.

The commander in chief submitted the following conclusions regarding the activities of the Asiatic Fleet in connection with the world flight:

The distribution of the destroyer squadron and mine detachment to cover the flight of the Army airplanes completely disrupted the schedule of employment of the fleet from early April until the end of July, making it impossible to hold combined maneuvers or to undertake the fleet war-college work planned for the early summer, in which activities the fleet is lacking in training. However, the officers of the destroyer squadron came into contact with many foreign officials—naval, military, and civilian—and it is considered that the interesting, instructive, and cordial relations thus made possible have, to a certain extent, compensated for the loss to the fleet in its training for war. Furthermore, since, as stated by the flight officers on several occasions, without the assistance of the destroyers they would have been unable to have made the flight, and in view of the credit reflected upon the United States by the successful flight, it is considered that the time consumed on this special duty was well spent.

IX. ARRANGEMENTS FOR THE PASSAGE OF THE ATLANTIC

On July 5 the Chief of Naval Operations directed the commander light cruiser divisions to lend every assistance to the world flight during its passage of the Atlantic. He was directed to guard the planes in flight and to furnish radio communication. To make the preliminary arrangements he was directed to appoint a place for a conference with officers of the Air Service.

This conference was held at Newport on July 11. As a result of the conference the commander light cruiser divisions recommended that four light cruisers and six destroyers be utilized for safeguarding the flight. Three of the cruisers were to rendezvous at Rosyth, Scotland by July 28. In accordance with this recommendation the *Raleigh* and *Richmond* were designated to rendezvous at Rosyth. Two destroyers of Division 26, which was operating in Europe, were to replace the third cruiser at Rosyth. The *Milwaukee* and a special division of five destroyers of the Scouting Fleet were designated to proceed to Labrador and Greenland in July.

X. BROUGH TO REYKJAVIK

On July 17 the flight had arrived at Brough on the Humber. The planes were thoroughly overhauled, and landing gear was replaced by pontoons. They were to be ready to proceed by July 30.

On July 28 the *Richmond*, flagship of commander light cruiser divisions, *Raleigh*, *Reid*, and *Billingsley*, met at Rosyth and proceeded to take up their stations for the flight to Iceland, as follows:

Raleigh, at Hornafjord, Iceland.

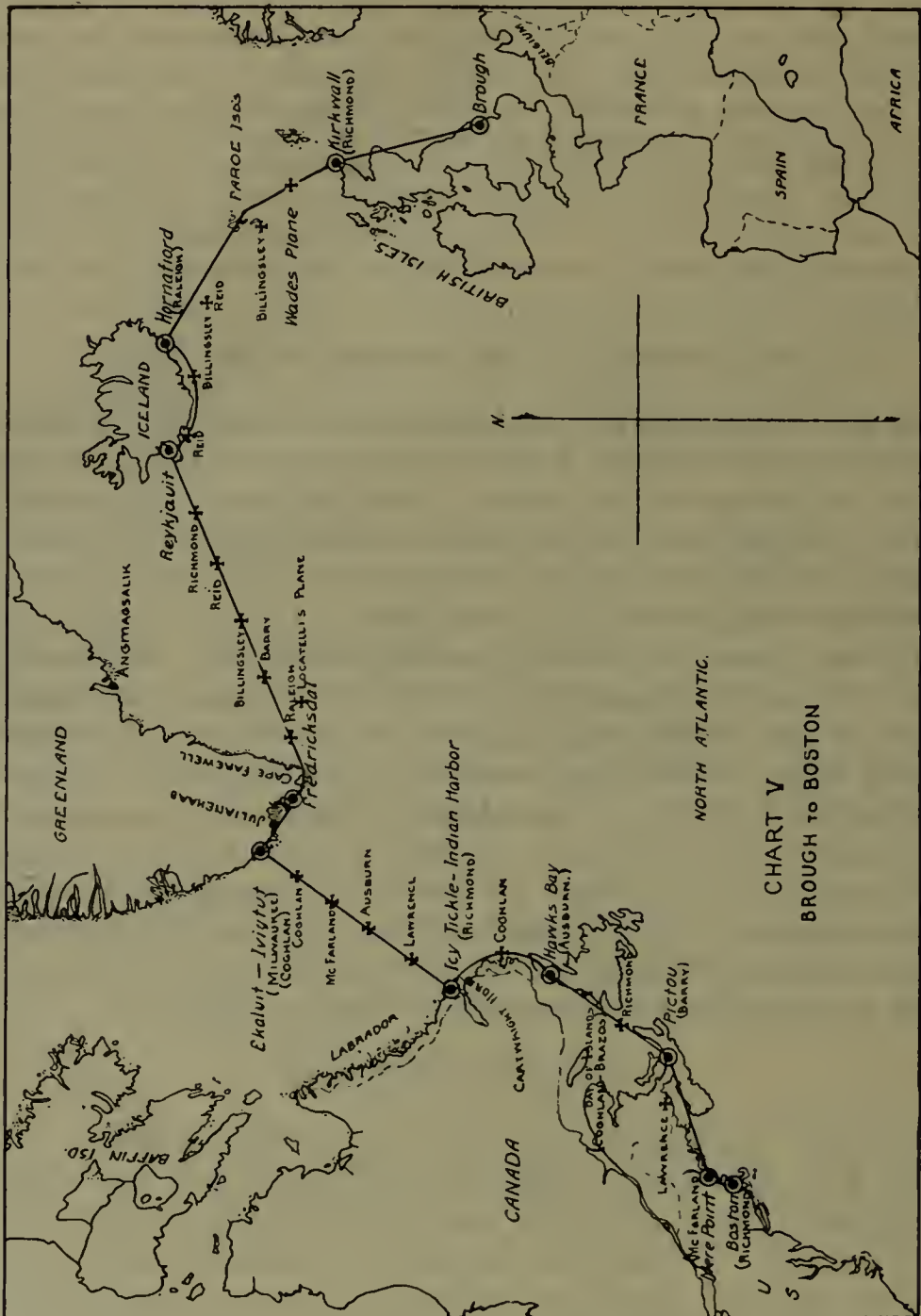
Reid, between Iceland and Faroe Islands.

Billingsley, off Faroe Islands.

Richmond, at Kirkwall, Orkney Islands.

The *Richmond* arrived at Kirkwall 8.05 a. m. July 30. The planes made the flight from Brough to Kirkwall this day, arriving at 3.45

p. m., and securing to the moorings planted by the *Richmond*. The distance of 450 miles was made in 5 hours and 30 minutes. Much of the flight was made through rain and fog. On July 31 the



Raleigh arrived at Hornafjord and made excellent preparations, including the establishment of a radio station on shore.

Unfavorable weather conditions delayed the flight until August 2. At 8.34 a. m. the planes proceeded, and the *Richmond* followed along the line of flight. After proceeding for 5 miles fog was encountered by the planes. After flying above the fog for 30 minutes more all



U. S. S. RICHMOND'S BOATS SERVICING PLANE AT KIRK WALL
(Navy Photo)

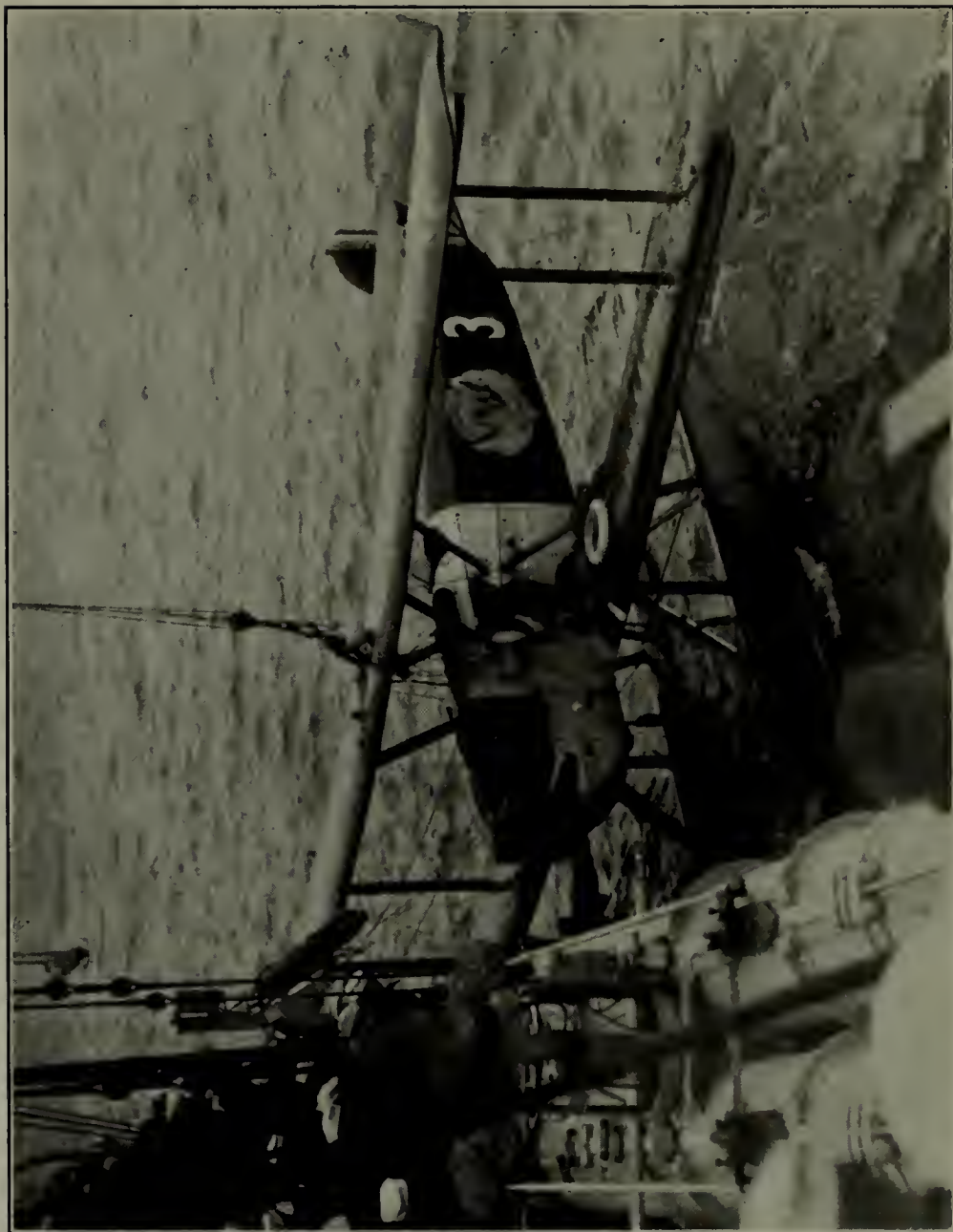


U. S. S. BILLINGSLEY TOWING LIEUTENANT WADE'S PLANE OFF FAROE ISLANDS

(Navy Photo)



BRINGING LIEUTENANT WADE'S PLANE ALONGSIDE U. S. S. RICHMOND
(Navy Photo)



U. S. S. RICHMOND COMMENCING TO HOIST LIEUTENANT WADE'S PLANE
(Navy Photo)

three planes were caught in a very heavy fog at a higher altitude. Smith and Wade came out of it at an altitude of 2,800 feet and searched for about 30 minutes for Nelson. Fearing an accident to his plane, they returned to Kirkwall, dropping a message at the hotel for the *Richmond*. In the meantime Nelson had been caught in the propeller wash of another plane and had fallen in a partial tail spin. He righted his plane just above the water, came out of the fog, and proceeded singly toward Iceland.

At 11.08 the *Richmond* received a dispatch from Kirkwall transmitting Smith's message dropped on the hotel. The *Richmond* continued on her course along the line of flight, to be in readiness to search for Nelson. At 1.06 p. m. the *Billingsley* reported that Nelson had passed. The *Richmond* then returned to Kirkwall and secured planes 2 and 3. Nelson, in plane 4, arrived at Hornafjord at 5.37 p. m., requiring 9 hours and 3 minutes for the distance of 555 miles.

On the next day, August 3, Smith and Wade started again at 9.30 a. m. The *Richmond* proceeded along the line of the flight. All went well until Wade was forced down by an engine failure when close to the Faroe Islands. Smith circled for a time and continued on his course when it was seen that Wade's engine could not be repaired. He dropped notes on a telegraph station on the Faroe Islands and on the *Billingsley* and then proceeded toward Hornafjord, arriving safely at 3.43 p. m. The weather conditions were unfavorable during the last part of the flight, and the *Reid* was not sighted.

At 12.45 p. m. the *Richmond* received a dispatch from the *Billingsley* relaying the message Smith had dropped concerning Wade's forced landing. The *Richmond* headed for the reported position of Wade's landing and increased speed to 30 knots. The *Billingsley* also proceeded at high speed to the rescue. At 3.30 p. m. the *Richmond* arrived in the reported position of the plane and put over an observation plane to search, but it proved impossible to take off in the increasing sea; the plane was hoisted in again. In the meantime the *Billingsley* reported that the British trawler *Rugby of Grimsby*, had turned over the plane to her. The wind had increased to 30 miles an hour, and the sea was coming up when the *Richmond* joined the *Billingsley*. The plane was taken alongside the *Richmond*, gasoline tanks were emptied, and all movable equipment was taken out to lighten the plane. It was then hooked on and hoisted clear of the water. The upper eyebolt of the boom topping lift carried away and the boom fell on the plane, breaking the propeller and puncturing the port pontoon. After having made emergency repairs to the pontoon, the plane was taken in tow and the ship proceeded toward

Sydero Island, in the Faroe group, about 45 miles distant. At 4.45 the next morning, when only about 5 miles from land, the towing bridle parted and the plane went down by the nose until only the tail and the ends of the pontoons remained in sight. It was then abandoned, and the *Richmond* proceeded to Reykjavik, arriving on August 5. The *Reid* and *Billingsley* took their appointed stations off the southern coast of Iceland.

The flight proceeded from Hornafiord to Reykjavik on the 5th, arriving there just as the *Richmond* came in. Five hours and three minutes were required for the flight of 290 miles. The *Raleigh*, *Reid*, and *Billingsley* proceeded to take up their assigned stations for the next flight.

The next scheduled landing place was Angmagsalik, Greenland. A Danish vessel, the *Gertrud Rask*, had been chartered to deliver aviation supplies there, but had been unable to get within 15 miles of the harbor on account of ice fields. As it was apparent that the flight was now to be delayed for some time the *Raleigh*, *Reid*, and *Billingsley* were recalled to Reykjavik. The destroyers were refueled from the light cruisers.

XI. REYKJAVIK TO BOSTON

In the meantime the *Milwaukee*, *Lawrence*, *Barry*, *Coghlan*, *McFarland*, and *Charles Ausburn* had been making preparations in the western Atlantic.

On July 18 the *Milwaukee* proceeded from New York with the following aviation supplies on board: 1,500 gallons of gasoline; 150 gallons of oil, twelve 250-pound anchors, 360 feet of chain, 306 cubic feet of boxed supplies, and miscellaneous rope, shackles, and other material. After a three-days' visit in Halifax, where Lieutenant Bissell, the Air Service advance officer, was taken on board, the ship departed on July 23 for Picton Bay, arriving there the next day. After making the necessary arrangements there for the reception of the flight the *Milwaukee* touched at Hawkes Bay, Newfoundland, and proceeded on the 28th to Cartwright Harbor, Labrador. Dense fog and icebergs were encountered. On the 29th the moorings for three planes were laid down and on the 30th the ship anchored in Indian Harbor after a run of 35 miles. After delays, due to rough weather, an additional set of moorings were laid down nearby at Icy Tickle.

On July 24, the *Lawrence*, *Barry*, *Coghlan*, and *McFarland* proceeded from Newport for Halifax, being joined en route by the *Charles Ausburn* from Boston. On the 31st the division proceeded to Indian Harbor. After their arrival on August 2 the *Milwaukee* proceeded immediately toward Ivigtut. On the 4th that port was

reached after passing through icebergs and dense fog. Great difficulty was experienced in communications with the flight and accompanying vessels in Iceland. Ivigtut was found unsafe for both the ship and planes, but a good place was found near by at Ekaluit.

On the 6th, as it was becoming doubtful whether a base could be established at Angmagsalik, the flight commander requested Lieutenant Bissell on the *Milwaukee* to establish a base near Cape Farewell at the southern point of Greenland. On the 7th the *Milwaukee* sent Lieutenant Bissell in her observation plane to Julianehaab, between Ivigtut and Frederiksdal. There he hired the Danish motor boat *Ruth* which proceeded to the *Milwaukee* to take on aviation supplies. In the meantime the steamship *Dannery* arrived at Ekaluit with aviation stores, including some for the Italian flight; the transfer of stores to the *Milwaukee* was commenced. On the 10th the moorings were laid down at Ekaluit. On the same day the chartered motor boat *Ruth* left the *Milwaukee*, with Ensign Fines and naval personnel in addition to its regular crew, to establish a base at Frederiksdal. Lieutenant Bissell reported that the naval cooperation was splendid.

On the 6th and 7th the destroyers at Indian Harbor rode out a gale.

While efforts were being made to provide for a flight direct to Frederiksdal in case of necessity, the plan to use Angmagsalik had not been given up. On the 8th the commander light cruiser divisions decided to send the *Raleigh* to the vicinity of that harbor to investigate. On the next day the *Raleigh*, with Lieutenant Wade on board, proceeded from Reykjavik and on the 10th arrived within 80 miles of Angmagsalik. On the lifting of the fog the *Raleigh* found herself almost surrounded by the ice pack and damaged both starboard propellers in maneuvering to get clear. On the 11th, the fog having lifted, the *Raleigh* sent two planes to make a reconnoissance of the ice pack. They reported that opposite Angmagsalik the ice pack was 10 miles wide and that there was open water inside the ice. On the same day the *Gertrud Rask* finally succeeded in forcing her way into the harbor. On the 12th the *Raleigh* sent a plane to the *Gertrud Rask* with Lieutenant Wade. After conferring with Lieutenant Schultz, the advance officer on that vessel, it was decided that Angmagsalik was suitable only for an emergency landing place. Due to the limited space for taking off, this could not be done with a heavy load; thus it would be necessary to refuel at sea off the Greenland coast. Even with these disadvantages the flight commander decided to fly toward Angmagsalik, rather than attempt the longer flight to Fredericksdal.

On the 13th the *Barry* and *Coghlan* proceeded from Indian Harbor for Greenland. Icebergs were sighted frequently. In the eve-

ning watch, August 14, these vessels parted company, the *Barry* taking position 60 miles off Cape Farewell and the *Coghlan* lying to off Julianehaab.

On the 14th the *Richmond*, *Reid*, and *Billingsley*, in the order named, proceeded to take stations between the *Raleigh* (off Angmagsalik) and Reykjavik. Due to a temporary breakdown of the *Reid* that ship exchanged stations with the *Billingsley*. On the 17th, after the vessels had been lying to for two days in a heavy gale, the flight commander sent a dispatch, stating that he would fly direct to Frederiksdal and requesting the naval vessels to be disposed between Reykjavik and Cape Farewell. On the morning of the 18th all vessels were in position in the following order from Reykjavik: *Reid*, *Billingsley*, *Raleigh*, *Barry*, and *Richmond*. In proceeding to take this position the *Barry* passed through many icebergs, skirted an ice field, and frequently was forced to reduce speed due to dense fog.

In the meantime the *Milwaukee* had completed loading the stores from the *Dannery* at Ivigtut, all articles being transported in motor launches. The Danish inspection vessel *Islands Falk* had been ordered to assist the *Milwaukee* and had joined that vessel at Eka-luit. On the 14th the emergency base at Frederiksdal, established by the hired motor boat, was ready. Upon arrival of the *Islands Falk* at Frederiksdal that vessel again reported all in readiness and commenced sending weather reports to Reykjavik. On the 18th the *Coghlan* anchored in company with the *Milwaukee*.

On August 16 the Italian aviator Locatelli arrived at Reykjavik to make the trans-Atlantic flight. On Lieutenant Smith's recommendation his plane was allowed to accompany the United States flight, although it had been originally agreed that he was to remain one stop behind our flight.

On the 18th at 10.15 a. m. the fliers attempted to take off. The conditions were unfavorable because of the long swells and lack of breeze. Smith broke his front spreader bar and Nelson his propeller. The spare parts, unfortunately, were on the *Richmond*. That vessel accordingly returned to Reykjavik, delivered the spare parts on the 20th, and sailed again to take station on the line of flight. The ships were now arranged in the following order from Reykjavik: *Richmond*, *Reid*, *Billingsley*, *Barry*, and *Raleigh*.

On the 21st, at 6.55 a. m., the two American planes and one Italian plane commenced their 830-mile flight from Reykjavik. When the planes passed the *Richmond* Locatelli was leading by three minutes. The *Reid*, *Billingsley*, and *Barry* also sighted all three planes. Locatelli was 35 minutes ahead when the last ship was passed. The planes were not sighted by the *Raleigh*. They proceeded singly for



NAVY PERSONNEL HAULING OUT LIEUTENANT NELSON'S PLANE AT REYKJAVIK
(Navy Photo)



HOISTING U. S. S. RICHMOND'S PLANE AFTER SEARCHING FOR LOCATELLI

(Navy Photo)



THE PLANES AND U. S. S. MILWAUKEE AT EKALUIT

(Photo by Lieutenant Bissell, U. S. Army)

the last part of the flight, having been separated by dense fog and icebergs. Smith arrived at Frederiksdal at 5.30 p. m. and Nelson came in 37 minutes later. Nothing was heard of Locatelli after he passed the *Barry*. The flight commander considered this the most dangerous flight accomplished in circling the world.

The *Reid* and *Billingsley* returned to the European station. The *Richmond*, *Raleigh*, *Coghlan*, and *Barry* commenced a methodical search for Locatelli to cover an area 40 miles on either side of the line of flight from the *Barry's* station to Cape Farewell and an examination of the Greenland coast. The planes of the *Raleigh* and *Richmond* were used in the search and searchlights were kept on at night, so that if sighted by Locatelli he could taxi toward the ship. The search was continued throughout the 22d, 23d, and 24th. On the 23d it was necessary to send the *Barry* to Bay of Islands, Newfoundland, for fuel. On the 24th the *Raleigh* searched the Greenland coast with planes. The *Coghlan* returned to Ekaluit. Much fog and ice was encountered by all ships during the search. While the *Richmond* was proceeding during the night of August 24-25 to a position from which to commence at daylight the search of the last area to be covered, a signalman, Willis T. Pinkston, reported a green Very star. The ship was headed in the direction of the star, and soon other signals were sighted. At 12.20 a. m. the Italian plane was picked up by searchlights. The four occupants were taken on board, and with the consent of Locatelli the plane was destroyed by fire to prevent it from becoming a menace to navigation. The *Raleigh* then proceeded to Bay of Islands and the *Richmond* to Indian Harbor.

The *Islands Falk* assisted *Nelson* in renewing a pontoon strut, broken when landing at Frederiksdal, and her captain organized searching parties for Locatelli along the Greenland coast. Similar parties were organized also by the *Milwaukee*. Great difficulty was experienced at Frederiksdal in keeping the ice clear of the moorings, and one of the *Nelson's* pontoons was damaged. On the 23d the flight was delayed by fog, but on the next day the planes flew to Ekaluit, near Ivigtut, where they were received by the *Milwaukee*, which had been waiting 20 days for them. Four days were used to shift engines at Ekaluit, in which work Navy personnel assisted. On the 28th the planes were tested out and ready for the flight to Icy Tickle, near Indian Harbor.

In the meantime the *Brazos* had arrived at Bay of Islands, Newfoundland, with 5,000 tons of fuel for the vessels safeguarding the flight. On the 26th the *Barry* arrived there and fueled. On the 27th the *Richmond* arrived at Indian Harbor and issued orders for the vessels to cover the flight from Ekaluit. They took station on the 29th in the following order from Ekaluit: *Coghlan*, *McFar-*

land, *Charles Ausburn*, and *Lawrence*. After riding out a gale at Bay of Islands the *Barry* proceeded on the 28th for Pictou, arriving on the 29th.

After having been delayed for several days by bad weather, the flight of 560 miles was made on the 31st in 6 hours and 55 minutes. The covering forces then took the following dispositions:

Charles Ausburn proceeded to Hawkes Bay, Newfoundland.

McFarland proceeded to a position off the Labrador coast to safeguard the flight to Hawkes Bay.

Lawrence proceeded via Indian Harbor for Bay of Islands to fuel; thence to Halifax and Boston.

Coghlan gave 22,000 gallons of fuel to the *Richmond*, received from the *Milwaukee* one propeller for Wade's new plane at Pictou, and then proceeded to Bay of Islands for fuel.

Milwaukee proceeded to Indian Harbor and thence to Bay of Islands to fuel.

Richmond proceeded to Bay of Islands and thence to Cape George, Nova Scotia, to cover the flight to Pictou.

On the 29th the *Barry*, after landing Lieutenant Wade and Ogden, returned to Bay of Islands; after delivering mail for all ships to the *Brazos* the *Barry* proceeded again to Pictou, arriving on the 1st.

On the 2d of September the planes made a dangerous flight through fog from Icy Tickle to Hawkes Bay, passing over the *McFarland* and being received by the *Charles Ausburn* at Hawkes Bay. The distance of 315 miles was covered in 4 hours and 56 minutes. After the planes passed, the *McFarland* proceeded to Bay of Islands to refuel from the *Brazos*.

The next day the flight proceeded to Pictou, a distance of 430 miles, in the slow time of 6 hours and 34 minutes, passing over the *McFarland* and *Brazos* at Bay of Islands. A propeller for Wade's new plane was brought in by the *Coghlan*, which had stopped at Hawkes Bay and Bay of Islands en route to Pictou. As a pontoon spreader bar was broken in landing, the *Coghlan* immediately proceeded to Bay of Islands, received a new one from the *Brazos*, and delivered it to the *Barry* at Pictou on the 5th at 8.04 a. m.

The *Richmond* now took up station at Nahant, the *Lawrence* at St. Johns, New Brunswick, and the *McFarland* at Portland, Me. The *Barry* was at Pictou, and the *Charles Ausburn* was fueling from the *Milwaukee* at Bay of Islands, the *Brazos* having been detached.

After replacing the spreader bar the planes took off for Boston, but after covering 450 miles in 6 hours and 5 minutes they were forced by dense fog to land at Mere Point, near Portland, Me. The *Coghlan* proceeded to Newport.

On the 6th the flight of 100 miles to Boston was made in 2 hours and 8 minutes.

The Navy's part in the world flight here ended. The commander light cruiser divisions stated that he was well pleased with the seamanlike way the ships under his command were handled and the good judgment used by commanding officers. Twelve vessels had steamed a total of 46,860 miles over a period of 51 days.

In all, 33 naval vessels on the Asiatic Station and in the North Atlantic had been employed over a period of 128 days. A total of 339 officers and 5,062 men participated at some time in the safeguarding of the world flight; 135,556 miles were steamed; 6,299,941 gallons of fuel oil, costing \$321,157.30, were burned. These figures do not include the *Hull* and *Corry*, which furnished assistance to the flight in the Aleutian Islands.

Upon the arrival of the flight in the United States the Secretary of War wrote as follows to the Secretary of the Navy:

The officers of the United States Army Air Service have nearly ended their flight around the world. Its successful accomplishment was made possible solely by the combined efforts of all those who were asked for their aid.

I desire to express to you and to the officers and men under your command my great appreciation of all that they did to help. Under the most trying circumstances, ably and whole-heartedly, they did their best to bring the flight to a successful conclusion.

When the planes finally arrived at Seattle the Secretary of the Navy sent the fliers the following dispatch:

The Navy rejoices with and congratulates you on the completion of your globe-circling demonstration.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

**MONTHLY INFORMATION
BULLETIN**

VOLUME VIII—NUMBER 2

AUGUST, 1925

DISTRIBUTION

In general. Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

VOL. VIII, NO. 2—AUGUST, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

(III)

CONTENTS

| | Page |
|--|------|
| ARGENTINA : | |
| Proposed modernization of fleet----- | 1 |
| Flying the Andes----- | 3 |
| BRAZIL : | |
| Additional submarines proposed----- | 5 |
| CHILE : | |
| Naval note----- | 6 |
| CHINA : | |
| Foreign munitions for rival factions----- | 6 |
| Combat estimate----- | 9 |
| FRANCE : | |
| Air mail service to West Africa----- | 14 |
| GERMANY : | |
| Miscellaneous notes----- | 15 |
| GREAT BRITAIN : | |
| The Royal Air Force display----- | 19 |
| The De Haviland Aircraft Co----- | 23 |
| Activities at the Fairey aviation plant----- | 25 |
| The Royal Air Force mapping camera----- | 26 |
| Miscellaneous notes----- | 28 |
| ITALY : | |
| The naval review at Ostia----- | 33 |
| Coming annual maneuvers----- | 34 |
| The Baracca airplane contest----- | 35 |
| Miscellaneous notes----- | 38 |
| JAPAN : | |
| Visit to the "Nagato" and "Haruna"----- | 43 |
| Naval modernization program----- | 50 |
| Miscellaneous notes----- | 51 |
| LATVIA : | |
| Political notes----- | 55 |
| NORWAY : | |
| Ordnance note----- | 57 |
| RUSSIA : | |
| Miscellaneous notes----- | 58 |
| TURKEY : | |
| New naval construction----- | 61 |

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. VIII

AUGUST, 1925

No. 2

[Designation of this and subsequent issues changed to conform to standard practice for Government publications whereby a "volume" covers a fiscal year. Under system used heretofore this issue would have been designated "Number 8—1925"]

ARGENTINA

PROPOSED MODERNIZATION OF FLEET

(From the Argentine press)

It is proposed to amplify the law of modernizing the fleet—The latest technical progress makes indispensable the enlarging of the proposed modifications in the battleships "Rivadavia" and "Moreno"—It is proposed to modernize the armored cruisers—The "San Martin," "Belgrano," and "Garibaldi" and the cruiser "Ninth of July" will be transformed—Possible acquisition of another new unit.

Notices which have arrived from North America concerning the modernization of the battleships *Rivadavia* and *Moreno* in the plant at Quincy, and which have been published on repeated occasions, have informed us that the work is going forward with all activity, so that the first of these ships will be permitted to return at the end of the year, and a few months later the *Moreno*.

Other official information makes it possible for us to say that the work of the committee having the matter in charge has been arduous and delicate, since it has been necessary to study not only the installation of the technical part of the apparatus but its adaptation to the different parts of the ships, without making great changes in the structure or increasing to a great extent the cost.

According to the same information, it has been necessary to include in the expendable funds for the modernization of the structure systems which have been proved to be indispensable and which were necessary in that period of evolution when the law was passed. Of these systems, the most urgent and that with which the Ministry of Marine has been much occupied are those referring to the safety

of the life of the personnel. Among these is the apparatus to extinguish burning fuel oil and the increasing of the compressed-air plant for the ejection of gases from the guns.

The probable necessary pressure for this service of ejection of gases of combustion from the powder is one of capital importance on board ship, because an error of whatever character can produce very grave accidents. It is necessary that these changes in the ships of war include the most efficient air plants possible. There are also important elements of security which are indispensable and vitally necessary, concerning which the Ministry of Marine is not informed; but it is the opinion of mariners that without them the ships will not be efficient.

For example, one of these pending problems refers to the offense against aerial attacks which has been given so much attention, and that our country has no airplane carriers capable of defense against these attacks. It is said to be indispensable to have artillery of high elevation capable of fighting fleets of this class (airplanes) which these vessels will need when they go abroad. Also, the Ministry of Marine is occupied with the solution of the problem relating to internal communications as well as the progress of multiple and simultaneous radial telegraphic communication between the different units of the fleet, with other serious problems which the sailor must anticipate as well as the fundamental basis of a system of signals which will permit efficient manœuvres of the fleet in its evolution.

In this situation, and closely allied with the necessity for renovating and modernizing the old floating material, mentioned in the recent message sent to Congress by the Navy Department, we know that the Minister of Marine has requested the revision of the law mentioned, for the modernization of the fleet, to permit the completion of the work on the ships already mentioned and the acquisition of a new unit.

In order to obtain the best information, we have interviewed Admiral Domecq Garcia, who has confirmed our statements.

Unofficially, the minister has said to us that he would take this point up at the first meeting of the cabinet for the purpose of making a budget; but considering the great expenditure which it incurred, he did not believe it prudent to include new expenses in the ordinary estimates, but that the proposition would be taken up with the Minister of Finance for the purpose of studying all that related to the subject.

He will try, in reality, to follow the title of this article—to amplify the law for the modernization of the fleet, which has proved insufficient for its primary purpose; that is to say, the modernization of the two battleships and the necessary experiments,

as well as the purchase of material for submarine mines and also the necessary authority for modernizing the three armored cruisers mentioned previously and the cruiser *Ninth of July*.

With respect to the first, the Minister of Marine told us it was found that certain mechanisms were necessary to be installed in the ships for the efficiency of the vessels in combat and for the security of the crew.

Lately there has come up the problem of the utilization of the three armored cruisers *San Martin*, *Belgrano*, and *Garibaldi*, which, it is believed, should be modernized, not in such a complete form as the battleships *Rivadavia* and *Moreno*, but in a manner which will make them capable of efficient service. For this purpose it will be necessary to expend in the neighborhood of 1,500,000 pesos, utilizing the funds for fuel-oil tanks, which will permit a greater radius of action and better efficiency.

The minister said that probably they would not obtain a greater speed and radius of action of these old units, but they could maintain their original speed by changing the boilers and by utilizing a combustible mixture of coal and fuel oil.

Admiral Domecq Garcia also declares that he has a proposition to include in the new law which will be sent to Congress the transformation of the old cruiser *Ninth of July*, and it will be put in condition, not so much as a unit to accompany the fleet to sea but at least a ship adequate for special commissions to surrounding countries, or in which national authorities can make visits to near-by vicinities.

There is also included in these plans the possible acquisition of a destroyer or other ships considered indispensable for the fleet, such as a school training ship to replace the *Sarmiento*; and a polar ship for making the annual voyages to the South Orkney Islands is hinted as being part of the plan of the navy.

All these expenses are included in the navy budget; but after some private conferences between the President of the Republic, the Minister of Marine, and the Minister of Finance it is believed more practicable and feasible to prepare a special document enlarging the former law for modernizing the fleet already in force.

ARGENTINA

FLYING THE ANDES

(From the Argentine press)

Seven years have now passed since the first airplane crossed the Andes, when on April 13, 1918, Lieut. Luis Candelaria flew from

Zapala (Neuquen) to Cunco in Chile without once descending. The flight has since been repeated 28 times by Argentine and foreign pilots, and below is a résumé of the principal flights made:

April 13, 1918: Lieut. Luis Candelaria (Argentine). From Zapala to Cunco. Monoplane Morane Saulnier, 80 horsepower.

December 12, 1918: Capt. Dagoberto Godoy (Chilean). From Lo Espejo to Lagunitas. Biplane Bristol, 110 horsepower.

April 5, 1919: Capt. Ramando Cortinez (Chilean). From Lo Espejo to Estancia Silva, Mendoza. Biplane Bristol, 110 horsepower.

July 30, 1919: Lieut. Antonio Locatelli (Italian). From Tupungato to Lo Espejo. Biplane Bristol, 110 horsepower.

August 5, 1919: Lieut. Antonio Locatelli (Italian). From Valparaiso to El Palomar. Biplane S. V. A., 220 horsepower.

February 10, 1920: Lieut. Armando Priour (French). From Mendoza to Ovalle. Biplane Breguet, 300 horsepower.

March 9, 1920: Maj. Antonio Parodi (Argentine). From Los Tamarindos to Santiago de Chile. Biplane S. V. A., 260 horsepower.

March 29, 1920: Capt. Vicente A. Almonacid (Argentine). From Los Tamarindos to Vina del Mar. Biplane S. P. A. D., 220 horsepower. This flight was made by night.

April 1, 1921: Mdle. Adrienne Bolland (French). From Los Tamarindos to Los Espejo. Biplane Caudron, 80 horsepower. First woman to fly over the Andes.

May 22, 1921: Lieutenants Herrera and Gertner (Chileans). From Lo Espejo to San Luis. Biplane de Havilland, 230 horsepower. First flight over the Andes with a passenger.

August 20, 1921: Clodomiro Figueroa (Chilean). From Lo Espejo to Lujan, Mendoza. Monoplane Parasol Morane Saulnier, 120 horsepower.

December 24, 1921: Nicolas Bo and Ragadale (Italians). From Mendoza to Santiago de Chile. Biplane Ansaldo, 220 horsepower.

August 29, 1922: Capt. Federico Barahona (Chilean). From Lo Espejo to Villa Krause, San Juan. Biplane De Havilland, 240 horsepower.

August 29, 1922: Capt. Diego Aracena (Chilean). From Lo Espejo to Los Tamarindos. Biplane De Havilland, 240 horsepower.

December 31, 1923: Pedro Hansen (Danish). From Santiago to Mendoza. Biplane Curtiss "Oriolo," 160 horsepower.

November 29, 1924: Guillermo Hillcoat (Argentine). From Los Tamarindos to El Bosque. Biplane Curtiss Oriole, 160 horsepower.

December 4, 1924: Willy Neuenhoffen (German). From Los Tamarindos to Santiago. Monoplane Junker, 185 horsepower. Three passengers carried.

December 4, 1924: Frantz Kneer (German). From Los Tamarindos to Santiago. Monoplane Junker, 185 horsepower. Two passengers carried.

March 19, 1925: Lieutenant Saenz (Chilean). From Lo Espejo to Mendoza. Monoplane Junker, 185 horsepower. Two passengers carried.

March 20, 1925: Capt. Federico Barahona (Chilean). From Los Tamarindos to Lo Espejo. Monoplane Junker, 185 horsepower. Three passengers carried.

March 23, 1925: Nicolas Bo (Italian). From Santiago de Chile to Mendoza. Biplane Ansaldo, 220 horsepower.

June 24, 1916: Two Argentines, named Angel Zulaoga and Eduardo Bradley, crossed from Santiago to Uspallata in a balloon.

BRAZIL

ADDITIONAL SUBMARINES PROPOSED

For two years Brazil has contemplated the acquisition of additional submarines for the purpose of increasing the flotilla of three vessels, which she acquired from an Italian firm (Fiat) two or three years ago. The sale to Mexico of the cruiser *Deodora* last year furnished a sum of 8,000 contos, which has been set aside for submarine construction, and which, with accrued interest, may amount to-day to 9,000 contos.

The Brazilian Admiralty contemplates the acquisition of a single submarine, and the Minister of Marine has appointed a board of eight Brazilian officers, to which three members of the American Naval Mission have been added in an advisory capacity to consider bids for submarine from firms of several foreign nationalities, of which the principal are:

Ansaldo Co., Italian.

Armstrong & Vickers, British.

Bethlehem & Electric Boat Co., American.

The commission has not reported and may call for new bids, since all of those which have been furnished presuppose an expenditure considerably beyond 9,000 contos. The following is a list of the bids and prices which have been submitted:

| | |
|-------------------------|---|
| Electric Boat Co..... | 2,490,000 dollars or 23,655:000\$000 milreis. |
| Ansaldo..... | 34,3200,000 liras or 13,680:000\$000 milreis. |
| Contiere Triestino..... | 231,000 pounds or 10,857:000\$000 milreis. |
| Armstrong..... | 475,000 pounds or 22,325:000\$000 milreis. |
| Vickers..... | 385,000 pounds or 18,095:000\$000 milreis. |
| Bethlehem..... | 3,450,000 dollars or 32,775:000\$000 milreis. |

The exchange used was: Dollars at 9\$500; lira at \$400; pound at 47\$000.

Amongst the highest bids are those of the two American firms; if, therefore, they wish to obtain the award they must enter into an arrangement with the admiralty to finance the construction or afford other means which will reduce the cost to the Government of Brazil.

Capt. Edmundo Pereira, an active member of the board, is in favor of Italian construction, in spite of the statements submitted in proof that the United States supplies a better submarine than any other country. In view, however, of the determination of the President to reduce expenditures in all departments the decision will probably be based on prices and on the familiarity of the officers and men of the Brazilian Navy with the Italian rather than the American type.

The naval program to be spread over a period of years, contained in the portion devoted to the navy of the President's recent message to Congress, announced the necessity of acquiring 10 submarines of

1,000 tonnage each. No appropriation, however, was provided for their construction, and the only one available is derived from the sale of the *Deodoro*, which will scarcely suffice to purchase a single one.

CHILE

NAVAL NOTE

[From the Chilean Press]

Almost simultaneously with the announcement relative to the Argentine Fleet, there has been circulated a rumor in Chile that our Government also intends to make improvements in its fleet, at least partially.

The notice, not without basis of fact, assures us that there exists a plan for acquiring four cruisers and two submarines.

Examining these projects without any relation to equality or international rivalry would demonstrate that the action of both Governments would be justified, if only the condition of deterioration in which the respective fleets are found were considered.

Argentina and Chile have so far developed their marines of war almost parallel, and so it is not strange that the time for renovations coincides.

It may be observed that Argentina is a nation of extension, with population and wealth greater than ours, yet it has not greatly outdistanced us in the matter of naval armaments. It is undisputed that there are no resources upon which we could fall back in time of war upon the sea, nor is our force equal to Brazil, itself very small. We must recognize that Argentina has dominated every idea of leadership, on account of its continental intelligence, and has kept the spirit of the agreements of May in which Chile was included.

We should not view with surprise nor alarm the fact that Argentina has some modern units in her fleet, nor look at Argentina with eyes of rivalry, when in Chile some modest acquisitions are mentioned.

Above all, on account of the progress of science, the marines of war must be altered, and for the everlasting and necessary amity of the united pueblos and the common interests.

CHINA

FOREIGN MUNITIONS FOR RIVAL FACTIONS

June, 1925

The following information regarding the import of two shiploads of arms and munitions by Marshal Chang Tso-lin is of interest.

It is reported that from May 1 to May 7, 1925, the German steamer *Starat Tischer* unloaded at Newchwang a full cargo of munitions, consisting of 11,189 cases reported to contain 28,000,000 rounds of rifle ammunition and approximately 16,000 rifles. Both the ammunition and the rifles are reported to have been of the Mauser type, and a large part if not all was manufactured at the Spandau Arsenal, Germany. The ammunition was manufactured during 1915, 1916, 1917, and 1918 and supplied by the German Army to the Austrian Army during the war and was taken over by the Italian Army during 1919 and stored at Bologna. It was consigned by an Italian firm, the name of which is not available, to a Russian, of Harbin, whose name also could not be learned. It was shipped from Leghorn and was to have come via the Suez Canal, but the ship was detained at Port Said by British authorities. The vessel did not go through the canal but proceeded around the Cape of Good Hope and thence to Newchwang.

It is understood that these munitions were exported from Italy without a permit but with the cognizance of Government officials, while the munitions which were received from Norway were exported with the full knowledge of the Government and under an export permit.

The ammunition is reported to be in bad condition because of its age and the careless way it was stored in Italy. Tests of it which have been made are said to have shown that only about one in four shells explode. The price of the shipment was Mexican \$6,000,000, of which all but \$200,000 has been paid.

The second ship, *S. S. Var* of Norwegian register, arrived on May 6, 1925, at Yingkow and the cargo was discharged there on May 8 and 9 alongside the Peking-Mukden Railway line at the Yingkow wharf, from where it was sent via the Peking-Mukden Railway to Mukden, where it arrived on May 12.

The cargo was made up as follows:

| | Cases |
|--|--------|
| 25 kilograms, net, 7.9-mm. rifle ballistite----- | 4, 173 |
| 25 kilograms, net, Browning ballistite----- | 544 |
| 10 kilograms, net, Browning ballistite----- | 1 |
| 25 kilograms, net, 75-mm. field gun ballistite----- | 1, 270 |
| 25 kilograms, net, 75-mm. mountain gun ballistite----- | 1 |
| 66 pounds, net, black powder----- | 100 |
| 100 kilograms, net, tri-nitro toluol----- | 3, 139 |
| Total----- | 9, 228 |

The marks on the cases indicated that the shipment had been made up of products manufactured in three different countries. The tri-nitro toluol was manufactured in Sweden, the black powder was of British origin, and the ballistite was marked "Gullang," "Norse,"

which the ship's officers stated was the trade-mark of "Norsk Sproengstof Industri," of Norway. The entire shipment was sold by the latter concern, loaded at Oslo, Norway, and consigned to H. L. Graus. The nationality of consignee is unknown, and no such name is entered in any of the local directories, but it is possible that he is one of the Swedish or German employees of the Mukden Arsenal. Incidentally, that part of the Mukden Arsenal in which trench-mortar ammunition is manufactured is operated by one, Capt. F. A. Sutton, now a major general in the Fengtien army, who is of British nationality.

Supplementing the information given on page 4, July Bulletin, the following is of interest relative to munitions received by General Feng Yu Hsiang from the soviets:

While the soviet authorities are securing and making all necessary arrangements for the shipment of the arms and munitions being received by General Feng Yu Hsiang via Mongolia, the ammunition, rifles, and machine guns are actually of Krupp manufacture.

General Feng Yu Hsiang's present order totals \$5,000,000, and it is understood that the first payment of \$1,500,000 is to be shipped from Kalgan shortly in 50 or 60 cars.

A further indication of the unusual interest displayed by the soviet authorities in the military preparations of General Feng Yu Hsiang is the recent arrival of three soviet artillery officers who have commenced to instruct General Feng's troops.

During the last few days there has been a wholesale commandeering of carts and camels by the military for the transportation of the arms and ammunition received from Mongolia, from Chang Pei Hsien, 45 miles northeast of Kalgan, to Dolonor on the Jehol-Chahar border.

There appears to be something in the nature of a concentration both of troops and military supplies of all kinds at Dolonor, the logical scene in this region of a Feng-Chang clash, should it occur.

A more recent report than the above states as follows:

It is reported from Urga that the Soviet Government has intimated to General Feng Yu-hsiang that the recent shipment of arms received by him are a gift from Soviet Russia and concrete evidence of the aid which Soviet Russia is prepared to give to the Kuomintang, of which it is hoped General Feng will assume the leadership, in support of its efforts to establish communism in China.

CHINA

COMBAT ESTIMATE

June 1, 1925

(Prepared by M. I. D.)

I. MILITARY

1. STRENGTH

| | Present strength | Trained reserves | Military man power |
|---------------------------------------|---------------------|---------------------|-----------------------|
| Troops of all classes under arms..... | 1, 200, 000 | | 1, 200, 000 |
| Trained reserves..... | | | |
| Untrained reserves..... | | | 14, 000, 000 |
| Total military man power..... | | | 15, 200, 000 |

Military man power is low owing to low standards of living and poor sanitation.

2. ORGANIZATION

a. *War Department.*—The practical administration of military affairs is supposed to be largely in the hands of the Ministry of War. In practice, control is decentralized to such an extent that with the exception of a few troops in Peking, the movement and even the mission of troops is almost entirely in the control of provincial or local commanders. The present provisional government has no armed forces of its own, but is supported by those of Generals Chang Tso-lin and Feng Yu-hsiang.

b. *Method of recruitment.*—Service is voluntary with temporary compulsory service of local people when considered expedient by leaders. There is no fixed enlistment period; most enlistments are, however, for three years.

c. *Armies, corps, and divisions.*—In general there are no units of organization larger than a division, but it is known that General Chang Tso-lin has grouped certain of his forces in the vicinity of Tientsin and Nanking under an army administration. Details of these organizations are not known. During the recent civil war armies were created of four or five brigades each.

A normal division consists of about 12,500 men organized into two infantry brigades each of two regiments; a regiment each of cavalry and artillery, a battalion each of engineers, machine guns, and transport, a sanitary detachment, and a band. In practice, divisions may be reduced to two or three thousand men, depending upon the funds made available to the division commander for maintaining his division.

A recent order has been issued by General Chang Tso-lin directing the following organization of the Manchurian Army:

| | |
|--|---------|
| 16 divisions of infantry (11,640)..... | 186,240 |
| 2 divisions of cavalry (3,200)..... | 6,400 |
| 2 brigades of artillery (2,700)..... | 5,400 |
| 1 regiment of engineers..... | 3,000 |
| Total..... | 201,040 |

d. *Combatant and noncombatant branches.*—An unusually large proportion of all troops are infantry. There is a general shortage of artillery and cavalry.

Generals Feng and Chang are both known to have some good field artillery units and the latter has some large units of cavalry which did good work in the recent civil war. There are no signal, engineer, or medical troops worthy of note, no tank or chemical warfare services, and practically no coast defense organization. There is no air service under the Central Government. A few local leaders have planes and pilots of their own. The strongest air unit is known to be at Mukden under the control of General Chang Tso-lin. He is known to have purchased recently 116 French planes.

3. EQUIPMENT

There is in all of China a total of about 1,000,000 rifles of every age and type, 2,000 machine guns, and 3,000 field guns of different models. The great variety of models of guns and rifles renders all ammunition service difficult. Accoutrements are antiquated and insufficient. Uniforms are made in China and of poor quality. There are no reserve supplies in guns, ammunition, or equipment. Each provincial tuchun (military governor), an independent commander, recognizing little or no authority from Peking, organizes his own arsenal, from which he attempts to secure replacements of guns, rifles, ammunition, etc. Generally speaking, the material produced in these arsenals is insufficient and of poor quality.

The troops of General Chang Tso-lin are an exception to the above. They are well uniformed and there are some reserve supplies on hand.

Reports indicate that General Feng Yu-hsiang, with headquarters at Kalgan, is receiving, via Urga, a large amount of munitions from the Union of Soviet Socialist Republics.

4. MOBILIZATION METHODS

For the country as a whole there are no mobilization plans. Given a patriotic cause and assuming that funds were available, the following is suggested as the probable procedure for mobilization:

(a) Recruitment by conscription or otherwise to war strength of the existing organizations.

(b) The mobilization of these or parts of these existing organizations at critical points to be determined by the needs of the situation.

(c) Organization of replacement units to meet the needs of the active army and possible organization and mobilization of additional divisions to augment the active army. There is no reserve for this purpose.

Guns, rifles, and equipment for such a general mobilization would be lacking.

The more important military leaders undoubtedly have their own secret mobilization plans but these change from time to time with the ever-changing political situation.

5. DISTRIBUTION OF FORCES

a. *Normal distribution.*—There is no distribution to resist or initiate invasion. The distribution of troops depends upon the needs of the political group conspiring for power and on the troops available to the interested parties in the carrying out of their schemes.

For the most part, troops are stationed along or near the main arteries of communication. The object of the commander is to control areas with the idea of increasing returns in taxes, requisitions, etc., and incidentally as a protection against the efforts of his political enemies.

b. *Present distribution*.—At present there are two strong military organizations—the one under General Chang Tso-lin, the Manchurian military governor with headquarters at Mukden; the other under General Feng Yn-hsiang, with headquarters at Kalgan.

Forces of Chang Tso-lin:

| | |
|---|----------|
| South of the Great Wall----- | 120, 000 |
| Stationed from Shanhaikwan to Shanghai along Tientsin-Pukow and Manking-Shanghai railways. Principal concentration points are Shanheikwan, Tientsin, and Tsuehowfu. | |
| North of Great Wall----- | 90, 000 |
| Principal concentration points are Jehol, Chinchow, and Mukden. | |
| Total----- | 210, 000 |

| | |
|---|---------|
| Forces of Feng Yu-hsiang (first national army)----- | 70, 000 |
| 30,000 near Peking and 20,000 each in Chahar and Sinyuan. | |

| | |
|---|---------|
| Forces allied with Feng Yu-hsiang, Hu Ching-yi (second national army)----- | 75, 000 |
| Concentrated on Lunghai Railway at Kaifeng, Kweitch, and Loyang, and on Peking-Hankow Railway south of junction with Lunghai Railway. | |

| | |
|--|---------|
| Sun Yueh (third national army)----- | 30, 000 |
| Concentration at Chengchow, at junction Lunghai and Peking-Hankow Railways, and at Kunghsin. | |

| | |
|------------|----------|
| Total----- | 175, 000 |
|------------|----------|

| | |
|--|---------|
| Yunnanese troops under Tang Chi Yao----- | 25, 000 |
| Three divisions moving east into Kwangsi in contact at Kweihsin with mercenary Yunnanese troops under radical Kuomintang leaders. Four divisions moving northeast into Kweichow. | |

| | |
|--|---------|
| Kuomintang forces in Kwangtung----- | 65, 000 |
| Largely mercenary Yunnanese, Hunanese, and Kwangsi troops. Concentrated principally about Swatow, Canton, Shuehow, and Wuchow. | |

The various Provinces of China proper and Manchuria each have from 8,000 to 100,000 troops. All are not listed, as information is inaccurate, and the situation changes frequently with the constant shifting of forces from one Province to another.

Throughout China there are several hundred thousands of armed bandits most of whom maintain some semblance of military organization. There is really little difference between the bands maintained by leading bandits and the troops serving under the banner of many of the minor, semi-independent military leaders, since both types of "soldiers" are maintained by the same forcible, dishonest methods.

Japanese troops on the mainland of Asia total 30,000 and are distributed as follows:

Two divisions in Korea.

One division in Kwangtung Peninsula.

Detachments along the South Manchuria Railway south of Changchun and on the Peking-Mukden Railway at Tientsin and Chinwangtao.

Small detachments of foreign troops are stationed at Peking and Tientsin and along the Peking-Mukden Railway from Peking to Shanhaikwan in accordance with the protocol of 1901. They total 4,800.

About 25,000 soviet troops are stationed along the Siberian Railway from Lake Baikal to Vladivostok. The soviet ambassador at Peking has recently announced the withdrawal of the small detachment of soviet troops in Urga (Mongolia).

6. EFFICIENCY AND MORALE

The Tuchun system accounts to a large extent for the following outstanding features: Decentralization of military authority, the lack in most organizations of discipline, training, and efficiency.

The authority of the central Government has gradually broken down, and the strength of the Tuchuns has grown until now their control over their Provinces and the troops therein is practically complete.

Each Tuchun regards the units of the army stationed in his Province as his personal following, and in the struggle for ascendancy each spends a large proportion of the provincial funds for the recruiting and equipment of larger armies.

The Chinese are very poor organizers, and this racial characteristic is shown to a remarkable degree in lack of effective control of troops and a total lack of centralized staff which could or would perform proper staff functions in the emergency of war.

A few divisions of both General Feng's and General Chang's forces have proved to be efficient and have shown high morale. These troops are excellent in close-order drill, gymnastics, and barrack cleanliness.

The men of Yunnan and Szechuan Provinces have the reputation of being the boldest and best fighters in China.

7. THEORY OF COMBAT

The Chinese have little conception of fighting tactics, and their lack of organization would make the application of modern theories of combat difficult. Troops rarely conduct combat exercises or solve problems involving use of troops in battle.

At times they have shown determined holding ability but in general (unless superior in numbers) would avoid closing with their opponents.

In the usual action between two Chinese forces the casualties are few, and bribery, loot, conspiracy, and treachery are liable to play a larger part in the victory than strategy or tactics.

The Chinese troops have stamina and at times have shown great courage. China has, in the past, developed only a handful of aggressive officers.

II. NAVY

8. STRENGTH

- 1 light cruiser, 1898.
- 3 destroyers, 1912-13.
- 8 torpedo boats, 1895-1908.
- 13 gunboats (1 built 1884; 10 built 1907; 2 built 1912-13).
- 3 torpedo gunboats (1 built 1900; 1 built 1902; 1 built 1895).
- 5 patrol gunboats (3 built 1897-98; 2 built 1911-12).
- 18 river gunboats (3 built 1915; 5 built 1916-17; 1 built 1920; 1 built 1919; 4 built 1908; 1 built 1911; 1 built 1912; 1 built 1909; 1 built 1903; the last two ex-German boats).

- 1 transport.
- 2 dispatch boats.
- 1 training ship.

Provincial government vessels.—These ships do not belong to the Chinese Navy, but to the water police of the Provinces. They might, however, be used for national defense in the event of war.

16 miscellaneous vessels (including 9 old torpedo boats) belonging to water police, Kwangtung Province.

2 river gunboats belonging to water police, Chekiang Province.

No ships are under construction and no new ships have been authorized.

The navy is inadequate and unable to attempt proper defense. There are no submarines or mines.

9. ORGANIZATION AND ARMAMENT

A recent report on the Chinese Navy states that there are 54 vessels now in active service, divided into three fleets:

First fleet—11 ships stationed at the important seaports.

Second fleet—40 ships along the Yangtze River. Three of these are used as training ships.

Third fleet—2 transports and 1 cruiser, which is used as an officer's training ship.

There are no fighting ships of value. The largest modern gun carried is 8-inch caliber.

The total personnel of the navy is about 8,500 officers and men.

10. DISTRIBUTION

a Normal distribution.—Not known. Small naval docks are located at Foochow, Taku, Kiang Nan, and Wham Poa.

b Present distribution.—As above.

11. EFFICIENCY AND MORALE

The Chinese ships are in general well kept, smart, neat, and clean. For this the officers and men deserve great credit. As the navy has existed on practically nothing for several years, it is therefore entirely unprepared for the emergency of war. Men are several months in arrears in pay and there are no funds to purchase coal for the ships. The ships are old, in need of repairs, and inefficient.

There is a tendency in the navy as in the army to acknowledge allegiance to individual leaders rather than to the central government. The leader who can supply the navy with pay, stores, and repairs can control it.

III. GEOGRAPHIC

12. GEOGRAPHIC INFORMATION AFFECTING THE STRATEGY OF THE COUNTRY

The outstanding features of China's geographic location in relation to her connection with the world is her isolation. Except for the Chinese-Eastern and South Manchuria Railways, her only direct means of communication with foreign countries is by the Pacific Ocean to which she presents a 2,000-mile coast line with excellent harbors. This coast line, however, is flanked by the islands of Japan.

The great extent of territory and limited rail transportation make general mobilization difficult. Owing to difficulty of transportation, South China would form a theater of operations practically separate from the rest of China.

Lack of communication other than by sea makes the coast line a source of weakness. Each section would be isolated. An enemy could maintain himself at any point along the coast without much difficulty.

IV. CONCLUSIONS

1. The strongest force of Chinese troops to-day is under Gen. Chang Tso-lin. The second strongest force is under Gen. Feng Yu-hsiang.
2. Soviet military forces east of Lake Baikal amount to a police force only.
3. Japan can absolutely control the military situation in northern China and Manchuria whenever she sees fit to use her forces.
4. Against foreign troops China would act almost entirely on the defensive.
5. A well-equipped division could move anywhere in China so long as it were well supplied. However, an enemy force which attempted to operate on Chinese soil at any distance from a base on the coast would encounter serious difficulties in the way of boycott methods and raiding of the line of supply.
6. Granted sufficient incentive with able leadership, proper equipment, and an efficient staff, an effective Chinese force could be developed.

FRANCE

AIR MAIL SERVICE TO WEST AFRICA

June, 1925

The postal aerial service now operates between Dakar, Senegal, and Toulouse, France.

The Lactécoère Casablanca Line has just been extended down to Dakar, the capital of French West Africa. Three aeroplanes recently reached the Senegalese city successfully and are now in the aviation camp at Ouakam, near Dakar, in readiness for the weekly aerial postal service, scheduled to commence Saturday, June 6, 1925, at daybreak.

The itinerary, which comprises three stops en route where the machines are to be relayed, will be as follows: Dakar-Port Etienne, Port Etienne-Cape Juby, Cape Juby-Casablanca, and Casablanca-Toulouse. It is announced that the complete journey will be covered in 56 hours. At Toulouse the mail will be immediately distributed throughout France.

Supplemental postal charges will be made for carrying first-class mail, as follows:

From Dakar to France

| | Francs |
|-----------------------------|--------|
| From 0 to 10 grammes----- | 2 |
| From 11 to 20 grammes----- | 3 |
| From 21 to 50 grammes----- | 4 |
| From 51 to 100 grammes----- | 6 |

For each extra 100 grammes or fraction thereof, 3 francs.

From Dakar to Morocco

| | Francs |
|------------------------------|--------|
| From 0 to 10 grammes----- | 1. 40 |
| From 11 to 20 grammes----- | 2. 15 |
| From 21 to 50 grammes----- | 2. 75 |
| From 51 to 100 grammes----- | 4. 00 |
| From 100 to 200 grammes----- | 6. 25 |
| From 200 to 300 grammes----- | 9. 50 |

Registered mail will also be carried.

NOTE.—This report was forwarded by the first plane to leave Dakar with mail for France.

GERMANY

MISCELLANEOUS NOTES

The recent competitive airplane flight around Germany

This event was an aeronautical contest under auspices of German Aero Club.

There were 91 entries in the contest held recently under the auspices of the German Aero Club for the "B-Z" air prize of 1925 and the Boelcke prize. The first group (A) included airplanes under 40 horsepower and had 29 entries. The Ullstein Publishing Co., which gave the first prize, was quite right in limiting the competition to airplanes of not more than 80 horsepower. Their intention was to favor small airplanes, and they seem to have attained their object. The second group included airplanes of 40-80 horsepower and had 35 entries. The highest class included airplanes of 80-120 horsepower and had 27 entries.

The competing aircraft belonged to 37 various firms, aviation associations, and private individuals. The firms of the Albatros Werke, Berlin, and the Udet Airplane Construction, Munich, furnished eight airplanes each. Five airplanes each were furnished by the Junkers Co., Dessau; the Luftfahrtgesellschaft, Stralsund; the Bahnbedarf Co., Darmstadt; and the Caspar Works, Travemunde. Three airplanes each were furnished by the Stahlwerk Mark, Breslau; the Junkers Luftverkehr, Dessau; the Daimler Motor Co.; the Martens Aviation School; the Heinkel Aeroplane Works, Warnemunde; the Dietrich Flugzeug Works, Cassel. Two airplanes each were furnished by the Arado Co., Warnemunde; the Sport-fluggesellschaft, Berlin; Messerschmidt, Bamberg; the Flugtechnische Verein, Lubeck; the Baumer Aero Co.; the Fliegerschule Otto Bornemann; the Fock Wulf Flugzeugbau; the Aero Sport Co., Warnemunde. The remaining competing aircraft were furnished by sporting associations, aviation companies, academic aviation groups, and private individuals.

Although the competition was called a national one, meaning that only German aviators and machines were allowed to take part, there were nevertheless a whole series of foreign motors that entered the lists. The German Aero Club could not refuse their request because most of the prominent factories that were formerly employed in the manufacture of airplane motors have ceased to be interested in their construction, especially in that of small motors.

There were 18 foreign airplanes in the competition groups (16 English and 2 American) and 46 German ones; the Boelcke prize had only 5 competitors. The German firms were represented by Siemens, Mercedes, Junkers, the Stahlwerk Mark, the Versuchsbau Hirth, Daimler, Bolle-Fiedler, and Hake.

There were many well-known names among the flyers. Among those who have distinguished themselves after the war both in motorless flights and in sporting aviation may be mentioned Botsch, the winner of the Zugspitze flight; Raab, who landed on Unter den Linden; Rienau, Zimmermann, Martens, Ferdinand Schultz, the winner of the world record for long-distance soaring flight, as well as the best gliding flyers, such as Blume, Fuchs, Stamer, Spiess, Hakmak, Thomas, Schrenk, who are all of them good motor flyers as well. Among the well known flyers of pre-war time we may name the pilots Witterstätter, Cargancio, Schuler, Roth, Offermann, Unge- witter, Bassar, and Freiherr von Freyberg.

The significance and value of these two prizes did not seem to be very clearly understood by a number of people. One often heard opinions to the effect that the length of the courses to be covered during the flight competition were no greater than those daily covered by our air-traffic craft on the longer aircraft lines. The fallacy of this view lies in the fact that the difference in the aircraft of the competition flight and those of the ordinary air service was overlooked entirely.

It has been repeatedly pointed out that the German competition flight has a special object, namely, that of favoring small craft; that is, those machines whose equipment consists of comparatively small motors. The reasons why it has become necessary to favor these latter are to be found in the development of German aviation since the beginning of the war. At that time it was necessary to do the utmost in order to increase the performance capacity of air craft, and it was thought that this could best be attained by a continual augmentation of the performance of the motors. But the experience of foreign aircraft had shown that although the horsepower of their motors is often higher than ours, their performances are not correspondingly superior. When the peace of Versailles and its consequences obliged us to direct our aviation activities into other chan-

nels, we began to pay special attention to gliders. The standards fixed by the first Rhön gliding competition were such that many experts considered them to be unattainable, but subsequent experience proved that they were not only attained but ever outstripped. The next step was to increase the performances of the gliding planes by equipping them with motors. The practical results of this attempt, however, did not come quite up to the expectations, and this deficiency was chiefly due to the unsatisfactory state of the motor problem. A certain impulse was given the latter by the development of the motor-cycle motor. But it is a great pity that our German manufacturers seem to have no interest whatever in the construction of small aircraft motors, and one of the objects of this competition flight will be attained if it succeeds in persuading our motor manufacturers to give greater attention to the question of the small motor.

The airplane must become a machine of common use for sport and for practical purposes, and therefore it must be cheap, both as regards purchase cost and operation, and simple in its operation, these qualities being just as indispensable as they are in the case of small autos and motor cycles. It may seem strange to say so at the present time, but the small airplane will undoubtedly soon come into common use, just as much as the small automobile.

That is the reason why this competition flight should not only be welcomed but regarded as an absolute necessity. Last year's Rhön gliding flight competition made it clear that no further development of the small motor airplane can be expected in that direction, and it would be a great success for the airplanes of this recent competition if even a small number go on record as having passed all the stages. But we think that we may allow our expectations to go much further with good prospect of fulfillment.

Twenty-five years of meteorological research at high altitudes

By Dr. König, director of the Berlin Weather Bureau

The Prussian Aeronautic Observatory at Lindenberg celebrated its twenty-fifth anniversary on April 27, 1925. A survey of the activities and of the significance of this institution may help to form an idea of the progress of the "science of the air."

The first attempts to obtain sample meteorological observations in the higher air strata were made with the help of free balloons, kite balloons, and free registering balloons. In the last years of the past century the American, Notch, originated the idea of using the kite as a means of research in high altitudes, by which he hoped to obtain more numerous and varied data. He constructed light box-shaped

kites made of a bamboo frame with a linen covering and wings having a surface of about 4 square meters. These kites were equipped with light registering instruments which automatically recorded the conditions of the air strata through which they passed. The kite was held by a steel wire, $\frac{1}{2}$ –2 millimeters in diameter, wound over a motor-driven drum—the so-called kite windlass. As the carrying capacity of the kite was not sufficient to carry the weight of the long rope wire, a whole company of kites had to be used in all cases of high ascents, the foremost kite carrying the registering instrument, whereas the following ones were designed to lift the wire between one kite and the next and measuring several kilometers in length. An ascent of 4,000 meters requires a wire length of about 10 kilometers, which will float at a more or less acute angle to the earth's surface according to the strength of the wind. The average height of a kite ascent is about 3 or 4 kilometers and the maximum altitude attained by the kite carrying the instruments is $9\frac{1}{2}$ kilometers. As with ordinary children's kites, the highest altitudes are obtained by hauling in the kite, the speed of the wind and its lifting power being thereby artificially increased.

The registering instruments are small and designed to record the atmospheric pressure, the temperature, and the moisture. Instead of noting the indications with pen and ink, the indications are scratched on the drum and then fixed as soon as the kite descends. The altitude attained in the flight is inferred from the atmospheric pressure; the speed of the wind is deduced from the angle of altitude and the tension exercised on the wire, or else the kite may be equipped with a small wind gauge.

The Lindenberg Observatory can be proud of being the peer in the matter of kite ascents. During the past 25 years kites have flown daily and sometimes several times a day, subject, of course, to weather conditions, and a great quantity of scientific observations have been obtained. Besides its purely scientific value this material is of the greatest importance for every form of aviation, and that is the reason why the Lindenberg Observatory has gradually developed into the central station of the German Weather Service. It has become the center not only of kite ascensions but also of balloon ascensions, with and without registering instruments, as well as of that other branch of meteorological research known as aerology. Nevertheless, the observatory has remained true to its special vocation of kite ascensions, which it shares with one other station in Germany (Friedrichshafen on the Lake of Constance) and a very few stations abroad. The Lindenberg Observatory is under the control of the Prussian Ministry of Science, Art, and Education, and possesses a large staff of meteorologists, as well as a very numer-

ous personnel of technical assistants in various branches. Since the death of its founder, Assman, it has been directed by Geheimrat Hergesell.

Ever since rapid and high-climbing airplanes have begun to be constructed attempts have been made to make use of aviation for aerological purposes by fixing a registering apparatus between the wings. The reason why we are behindhand in the application of this method as compared with foreign countries is to be found in the restrictions in the sphere of aviation to which we have been subjected since the war. England, Holland, and Sweden are ahead of us in this branch of geological research, but the Lindenberg Observatory has done all that could be done under existing circumstances and has founded a branch station at Staaken, where airplanes are also being used for meteorological purposes.

The airplane undoubtedly possesses the following two great advantages: First, it can climb to a height of 5,000 meters in a much shorter time than the kite, which requires several hours for the same altitude; second, it can carry a trained observer who not only can take observations with the aid of instruments but who can also draw valuable conclusions from the study of cloud formations. Nevertheless, there are many occasions where better results can be obtained with the kite method, and the Lindenberg Observatory will continue to retain its own most useful field of action as well as its great value, both for science and for aviation.

Visits of naval vessels to foreign waters

According to telegraphic reports from Oslo, the German naval vessels *Hannover* and *Elsass* arrived there on June 19. Besides the ordinary flag salute a salute of 21 guns was fired in honor of Amundsen's return. The German Minister in Oslo visited the ships in the afternoon. The ships left again on June 24.

The small German cruiser *Amazon*, under the command of Captain Eichel, arrived June 19 in the harbor of Rotterdam.

GREAT BRITAIN

THE ROYAL AIR FORCE DISPLAY

The Royal Air Force Display, hitherto called The Royal Air Force Pageant, took place at Hendon on June 27, 1925. Approximately 120 airplanes took part and the display was witnessed by the King and Queen and other members of the royal family. It is estimated that about 90,000 people were present.

Program

Event No. 1.—LANDING COMPETITION

(For a cup presented by H. R. H. the Duke of York)

Description.—A field 150 yards square, is marked out on the airdrome by light posts and fabrics, 4 feet high, representing a hedge.

It is assumed that there are high trees over the areas occupied by the spectators, and therefore anyone flying over this area will be disqualified. The winner will be the pilot who, in the opinion of the judge, executes the best and safest landing within the inclosure.

Pilots must switch off at 1,000 feet, and any pilot who uses his engine after switching off, touches the hedge with any part of his airplane, or damages any part of his airplane in landing will be disqualified.

Event No. 2.—MESSAGE PICKING-UP COMPETITION

Description.—This event demonstrates one method of communication between aircraft and ground troops.

The competition is between a team of two Bristol Fighters from the School of Army Cooperation and each of the four Army Cooperations Squadrons.

The two Bristol Fighters of each team pick up their respective message bags which contain questions which are to be answered in the air, and drop the answers at the Message Picking-Up stations. The time for each Bristol Fighter is taken from the moment the message bag is picked up by the airplane until the answer is handed to the umpire. The times taken by the two airplanes of each team are added together, and the team with the smallest aggregate time is the winner.

Event No. 3.—LIGHT AEROPLANE RACE

Description.—Open to the Directorates of the Air Ministry.

Distance: About 5 miles.

Airplanes: D. H. 53's.

Event No. 4.—NEW AND EXPERIMENTAL TYPES OF AIRCRAFT

Description.—These aircraft taxi across the front of the airdrome, take off and fly round in order, as shown:

| No. | Maker | Type of aircraft | Description |
|-----|---------------------|------------------|--|
| 1 | Gloucester..... | Gamecock..... | Single-seater-fighter. Jupiter engine. |
| 2 | Hawker..... | Heron..... | Do. |
| 3 | Short..... | Springbok..... | Army cooperation type. Jupiter engine. |
| 4 | DeHavilland..... | Hedgehog..... | Three-seater reconnaissance. Jupiter engine. |
| 5 | Handley-Page..... | Hendon..... | Torpedo carrier. Lion engine. |
| 6 | Blackburn..... | Cubaroo..... | Torpedo carrier, coastal defense. Cub engine. |
| 7 | Bristol..... | Brandon..... | Ambulance. Jupiter engine. |
| 8 | DeHavilland..... | D. H. 54..... | Civil transport, single engine. Condor engine. |
| 9 | Vickers..... | Vanguard..... | Civil transport, twin-engined. Condor engines |
| 10 | Boulton & Paul..... | Bodmin..... | Experimental. Lion engine. |

Event No. 5.—SQUADRON DRILL WITH RADIO TELEPHONY

Description.—Before the advent of radio telephony the orders of the leader were transmitted to other pilots of the formation by means of a code, either of hand signals or of special movements of the leader's airplane.

This event is a demonstration of the use of radio telephony in controlling squadron drill in the air. The orders given by the leader to the pilots in the formation will be picked up by a ground station and broadcast. It must be remembered that the signals thus broadcast are exactly as heard by the pilots of the airplanes and that therefore the roar of the engines will be heard as well as the voice.

Event No. 6.—AERIAL COMBAT

Description.—A twin-engined bomber versus two single-seater fighters. In this event some of the tactics used in attack and defense are demonstrated.

Event No. 7.—WING EVOLUTIONS BY FOUR BOMBING SQUADRONS

Description.—An exhibition of evolutions by a wing of four bombing squadrons of nine airplanes each.

Event No. 8.—LOW BOMBING

Description.—A competition open to all flights of fighter squadrons.

A demonstration by the winners and runners-up. The object of this demonstration is to show a method by which a number of single-seater fighters can attack a ground target, like a tank, machine gun post, antiaircraft gun, bridges, etc., or at sea, control stations in battleships, antiaircraft guns on decks of destroyers.

The bombs are dropped from about 50 feet, no bomb sights being used, release being solely at the judgment of the pilot. The object is to maintain a continuous attack on the target but from different directions. If the airplanes arrived one by one from the same direction, they would offer a reasonable target to machine guns on the ground, but by arriving as they do the defense stands less chance of bringing down any of the airplanes.

It is essential that the attack should be made from the correct position at the right moment, and demands intensive training and high skill from the pilots.

Event No. 9.—FLIGHT EVOLUTIONS

(For a challenge cup presented by Captain the Honorable F. E. Guest, C. B. E., D. S. O.)

Description.—A competition open to all flights of fighter squadrons.

Demonstrations by the winners and runners-up.

This is intended to demonstrate certain features of training carried out in fighter squadrons.

Attack No. 1 is one simple method of attacking either a single hostile aircraft or a formation. In this attack No. 1 airplane retains its height in order to protect the other airplanes from attack while they are themselves attacking, and is also in a position to attack at a critical moment if circumstances require.

Airplanes Nos. 2 and 3 endeavor to attack simultaneously, one from above and one from below.

Attack No. 2 is the type of attack that can be used against a hostile airplane that is designed for all-around fire.

In attacking singly, airplanes would be liable to be shot down in rotation. By attacking one from astern and one from each quarter a simultaneous concentration on the hostile aircraft is obtained. In both these attacks it will be realized that considerable skill is required, in order that the pilots should not get into each other's way. After the completion of each attack the escape is

highly important, demanding rapid movements and a quick reforming of the flight. The escape is designed to permit of only a very fleeting target to the hostile aircraft.

Event 9a.—Parachute demonstration. Irving parachutes used.

Event No. 10.—SET PIECE

Description.—An enemy cruiser, the last of the commerce destroyers which on the outbreak of war were at large on the trade routes of the world, her speed reduced through lack of decking facilities, her enemies closing in on every side, has taken refuge up a tropical river, where she may refit.

Screened from seaward by the tropical vegetation, she lies in fancied security; but her retreat is discovered by a reconnaissance airplane launched from an aircraft carrier operating with a small British squadron. While reporting the cruiser's position, this airplane is heavily engaged by the cruiser's guns, and fleet fighters are dispatched from the carrier to attack the guns' crews and enable the reconnaissance airplane to complete its work.

Meanwhile heavy bombing aircraft, summoned by wireless from a base near by when the first report of the enemy cruiser's location was received, hasten to the scene, arriving shortly after the fleet fighters, and attack the cruiser with heavy bombs.

NOTES

The parachute demonstration consisted of simultaneous jumps from three Fairey *Fawns* at an altitude of about 1,000 feet. The Irving parachute was used. This was the first public demonstration of parachute jumping by the R. A. F. and excited as much interest as any other item on the program.

The various events were carried out with clocklike precision and the entire program indicated almost perfect ground organization and flight training. There were no casualties of any kind nor were there any forced landings.

Event No. 4 is usually the most interesting from a technical point of view. The following comments may be of interest in regard to the new types as listed for this event:

No. 1.—The *Gamecock*, built by Gloucester Aircraft Co., represents only a slight modification of the Gloucester *Grebe*, in which it is said that the structural faults of the *Grebe* have been eliminated.

No. 2.—The *Heron*, built by the Hawker Engineering Co. (Sopwith), represents with a slight modification a *Woodcock* and is said to have a considerably better performance than the *Woodcock*.

No. 3.—The *Springbok*, built by Short Bros., represents a modification of the *Springbok*, the modification consisting principally in increase of size of fixed tail surfaces and control surfaces.

No. 4.—The *Hedgehog*, built by the De Havilland Co., has characteristics rather similar to the Fairey *Fawn* and the Vickers *Venture*, but was never placed in production because the *Fawn* was considered slightly superior.

No. 5.—The *Hendon*, built by Handley-Page, did not appear, but it is understood to be a modification of the Handley-Page *Handley*.

No. 6.—The *Cubaroo*, built by Blackburn using the Napier *Cub* engine, has not proved a very satisfactory type, and it is not believed that the *Cubaroo* will be put into production.

No. 7.—The *Brandon* embodied no particularly interesting features except that of the Barnwell method of metal-spar construction.

No. 8.—The *D. II. 54*, built by De Havilland Co., is the latest type of passenger-carrying airplane and appeared to be a very good job except for the fact that it is single-engined. This airplane is said to have a top speed of 120 miles an hour. It is equipped with a divided automatic flap, which is said to reduce the normal landing speed by 6 miles per hour.

No. 9.—The *Vanguard*, built by Vickers, is practically the same as the *Varnon*, except that Condor engines have been installed in place of Napier Lions.

No. 10.—The *Bodmin*, built by Boulton & Paul, did not appear. It is an experimental type in which two Napier Lion engines are installed in the fuselage and drive two sets of tandem propellers by means of shafts and gearing.

GREAT BRITAIN

THE DE HAVILLAND AIRCRAFT CO.

July, 1925

This plant is located on Stag Lane, London. Tests are being carried on with the new *DII-54*, equipped with automatic wing flaps.

This is a condor-engined passenger-carrying airplane built to carry 12 paying passengers. This airplane is of the normal biplane type, except that it has quickly detachable landing gear, and the bottom and half of the sides of the fuselage are constructed in a more or less boatlike manner, the idea being that in case of a forced landing on the water the landing gear can be released by a pull of a lever on the part of the pilot, and the fuselage will probably stand the blow of the impact with the water, in the case of a normal landing, without rupture. It is not expected that the fuselage will remain entirely water-tight but that its water-tightness will be sufficient to keep the airplane afloat until rescue of the passengers is effected. No definite official performance data have been obtained, but the top speed is said to be 120 miles an hour and the landing speed 46 miles an hour with light load and estimated about 52 to 53 miles an hour with full load. Tankage for 145 gallons of gasoline is provided in the center of the upper wing, and this amount is said to be sufficient for four hours flight at cruising speed.

The most interesting feature of the *DH-54* is the fact that it is equipped with automatic wing flaps of the divided type in that approximately one-half of each flap is used as an aileron. This is the first airplane of more than medium size that has been equipped with automatic flap gear. During a demonstration when an altitude of approximately 2,000 feet was reached, the pilot proceeded to demonstrate the action of the flaps. The conditions were not favorable in that the air was exceedingly bumpy, and it was noted that lateral control was very sluggish. This fact does not appear to be in any way due to the flaps. The pilot gradually slowed down speed, maintaining level flight. At a point which was said by the pilot to be about 80 miles an hour, the flaps began to move down slowly, the motion being very smooth, which indicated an improvement over the means of operation of the other flaps on the earlier types. They continued to move down until an angle of 13 degrees was reached. This was not the limiting point of movement, which was 18 degrees, but at 13 degrees the airplane was evidently completely stalled and began a slow nose dive. The operation was repeated several times and the amount of movement of the flaps was approximately the same each time. Several partial turns were made with the flaps slightly down and the airplane seemed to control in a normal manner. The pilot stated later that he could not tell from the feel that the flaps being down affected his lateral control, taking into consideration the fact that the lateral control would naturally be sluggish at a speed low enough to cause the flaps to be in a down position.

The adjustment of the spring tension was said to be such that the flaps would be in a neutral position at normal climbing speed, which was approximately 80 miles per hour. It was noted on the take-off that the flaps had almost reached a neutral position when the airplane left the ground. A rather high-speed landing was made on account of the bumpy air conditions, and the flaps did not progress very far down before the wheels touched.

The pilot in discussing the flap gear as installed on the *DH-54* referred to the Fairey patents, which more or less confirms the opinion as to the incompleteness of the De Havilland patent with regard to covering the use of automatic flaps on airplanes of large type where they must be divided.

Only a small amount of work is going on in the shops. There are eight *Moths* in varying degrees of assembly, and a few *DH-9's* being reconditioned. The *Moths* are now being constructed with tubular metal fuselage and steel spars of the built-up strip type very similar to that used by Armstrong-Siddeley. The company officers are not very enthusiastic about either the built-up spar or the tubular fuselage. The spar construction is regarded as being very slow and expensive and the officials can see nothing in the use of the

tubular metal fuselage unless welding is permitted. They are inclined to favor the type of construction now being used by Hawker Engineering Co. (Sopwith).

GREAT BRITAIN

ACTIVITIES AT THE FAIREY AVIATION PLANT

July, 1925

The Fairey Aviation Co. factory at Hayes, Middlesex, is employing about 1,400 men at the present time and there appears to be plenty of work on hand. The principal work being carried on in the assembly room appeared to be the construction of Fairey *Fawns* equipped with supercharged Napier Lion engines. There were several aircraft of this type on the assembly floor; also several *Flycatchers* and Fairey *III D*'s. This was the first opportunity which has been had to see the supercharged *Lion*. The supercharger is of the turbo rotor type mounted on the forward end of the engine below propeller boss. The exhausts from the three banks of cylinders are led into the turbo casing, and there is no by-pass to any of the exhaust leads; hence supercharger is operating whenever the engine is running. The compressed air is led to the three carbureters by three separate pipes, and each of these pipes expands into a form of radiator in the vertical part of the lead above the supercharger. This is obviously for the purpose of cooling the air before it reaches the carbureter. The entire supercharger outfit was said to weigh about 200 pounds, and it is claimed that it will enable the *Fawn* fully loaded to reach an altitude of 27,000 feet.

Inquiries about the Fairey *Fox* disclosed the fact that it has not yet been bought by the Air Ministry, but is at Martlesham Heath undergoing tests. It was stated that the speed of the *Fox* was at least 170 miles per hour with full load.

The new type reconnaissance seaplane known as the *Ferret* was seen in the process of erection. The general appearance of this seaplane indicated simply an improvement over the *III D* except that it is an Amphibian with Brandenburg type of floats. A wheel is mounted in a well in the bottom of each float in a manner somewhat similar to that used in the *Flycatcher* Amphibian. It was stated that service tests have shown that the standard Fairey type of float is not satisfactory for use on Amphibians where the wheel is carried in the hull, as the drag of the wheel interferes very seriously with the planing qualities of the float. The *Ferret* is equipped with a Jaguar engine and carries 120 British gallons of gasoline. Its general performance is expected to be slightly better than the Fairey *III D* equipped with Napier Lions.

The single-seater fighter known as the *Firefly* is only partly constructed. This airplane is to be equipped with a Curtiss D12 engine. An interesting feature noted in the construction was the fact that welding had been employed very liberally in the construction of the engine bearer section, although welding is strictly prohibited by Air Ministry regulations. The *Firefly* is in the same status as the *Fox* in that it is being built entirely at manufacturer's risk and on no encouragement from the Air Ministry.

The only other new type seen was a *III F* under construction. The construction had not proceeded very far, but it was stated that this is simply an improvement over the *III D*, special effort having been made to reduce resistance and weight.

It was learned that the Fairey Co. has been having a considerable amount of trouble in the manufacture of duralumin propellers due to poor material furnished the company by Vickers. The sheet stock frequently has a number of cracks parallel to the plane of the stock. A small amount of stock has been ordered from the United States for purposes of comparison.

In a conversation it was brought out that it was the practice of the company to manufacture complete sets of tools and jigs for any type for which a construction order of 50 or more is received, and that it usually takes about three months to turn out this tool and jig equipment.

It was further learned that the average number of finished drawings for the average type is about 1,100. The technical staff of the Fairey Co. consists of about 70 employees, which is a much larger percentage of the total number of employees than has been observed in any other plant in England.

GREAT BRITAIN

THE ROYAL AIR FORCE MAPPING CAMERA

This camera appears to be similar to the Eastman type, but the British claim that it is an improvement over that type. It uses a 100-exposure roll film 65 feet long. The lens covers an area 7 inches by 9 inches, but 2 inches of this is taken up in recording data on the negative, and the resulting picture is 7 inches by 7 inches.

This data is recorded on the negative by means of a small box which is inserted into the side of the camera. This box contains five 3.5f lenses. Under these lenses are a clock, an altimeter, a title plate, showing the number of the squadron, the date on which the photograph is taken, and any other data that it is wished to record on the negative, a double level, showing exactly how much the

camera was tilted at the time of exposure, and a counter showing the serial number of the negative. Five small electric bulbs, similar to those used in hand flash lights, are so situated in this box that they throw light from the above-mentioned instruments through the lenses onto the photographic plate. At the instant of exposure these bulbs light up and each negative has a complete record of all necessary data recorded on it. This is a very efficient method of marking negatives, but it uses up 22 per cent of the plate surface in doing it. The camera uses a focal-plane shutter with only one opening and makes all exposures at one-ninetieth of a second.

All the working parts are contained in a small metal case screwed to one side of the camera by two screws. If any of these parts get out of order, the case containing them can be taken off and a new one installed in about two minutes' time. All photography is supposed to be done at an altitude of 10,000 feet if possible. Various focal lengths are used, but 20 inches seems the one used most, although some of the photographs exhibited had been taken with a focal length of 47 inches.

To develop the roll of films the end is attached to the center of a light skeleton wheel. The film is rolled onto this wheel, and wooden spacers which fit in slots on the inside of the wheel are dropped into position as the film is rolled on to keep it separated. When the film has been rolled onto this wheel it is dropped into a tub filled with developing solution. This solution develops it in three and one-half minutes. After it has been developed, fixed, and washed it is put on a large wooden wheel which is spun to accelerate drying. This wheel has four slots on the outside fixed to it by small springs. As the film dries it shrinks, and the compression of the springs supporting the slots takes care of the shrinkage. The film is never cut, and a record of it is kept by noting the first and last numbered exposure on the roll. Printing is done in any ordinary printing machine with a roller to pull each exposure under the printing aperture.

The camera is operated either by hand, a windmill, or an electric motor. It is fixed to a mount which is suspended by two springs. These springs operate a series of levers which are so arranged that the camera can vibrate only in a vertical plane. The observer is supplied with a large telescope affair, and by sighting on the ground he can read off the drift of the airplane. The camera is then rotated the amount determined by this instrument and this takes care of crabbing.

Exposures each have a 50 per cent overlap. By using two adjoining exposures a stereopticon effect can be obtained. These ex-

posures can be put in machines which project their image on a certain area. The beam from each of these machines passes through an interrupter similar to the interrupter on a moving-picture machine. This interrupter makes an image of a certain point dance back and forth across the plane on which it is projected unless the plane is placed at the common point of intersection of the two beams from this image. The image then stands still. In this way contours can be obtained. In practice the operator raises or lowers the plane on which the images are projected until the bottom of the lowest valley stands still. He then raises the plane by a definite amount and draws a line through all the points on the projected image which are standing still. This is a contour line a known distance above the bottom of the lowest valley.

GREAT BRITAIN

MISCELLANEOUS NOTES

July, 1925

Use of "Jupiter" engines by foreign countries

The following announcement has been made by the Bristol Aviation Co.:

The Bristol "Jupiter" engine being constructed in France is either in use or being installed by the French military authorities in 5 types of heavy bombers, 4 types of two-seater reconnaissance machines, and 4 types of single-seater scouts. The French Navy has at least 10 single-seater and multi-engined types of Jupiter engined machines.

A constructional license for Jupiter engines has been acquired by the Italian Government, and a number of these engines are under construction for the large air program Italy has in hand.

In Czechoslovakia, where great interest is being shown in aircraft development, a license to build Jupiters has been granted to one of the most important engineering concerns in the country.

Modified form of arresting gear on "Flycatcher"

It was noted recently that on a *Flycatcher* just turned out the arresting hooks were mounted on a bar about 3 inches behind the main axle and attached to the middle of that axle instead of being mounted on the axle itself. The hooks are permitted to rotate about the bar for an angle of approximately 45° , this rotation being against the tension of two short spiral springs. The effect of this arrangement is that when the hooks are engaged and the pull comes on them they swing backwards, with the result that the pull is exerted at a point which is about 6 to 7 inches behind the main axle.

Proposed training squadron at Oxford and Cambridge

Sir Samuel Hoare, secretary of state for air, has announced that he proposes to form this autumn a university training squadron at Oxford and Cambridge, respectively. This squadron will be for the instruction of undergraduates who are particularly interested in flying and is to be similar to the auxiliary air force squadron already formed. The purpose of the establishment of the squadrons is to raise interest in aviation among university students with the idea that some of them upon graduation will enter the Royal Air Force as officers.

Atlantic air project

London to New York in 46 hours, and London to San Francisco in 4 days; the Atlantic crossing to be effected in a series of flights between great floating aerodromes.

This is the project which the Oceanic Airways Co. has set out to accomplish, reports the aeronautical correspondent of the London Morning Post, who states that full details of the scheme were placed before Sir Sefton Brancker, director of civil aviation, at the air ministry on May 25, 1925, and further negotiations with the Government are pending.

Special aircraft which combine certain of the qualities of both the flying boat and the float seaplane have been designed and patented by Mr. J. G. Navarro, who was engaged in aircraft design during the war. Mr. Gaynor, who was responsible for the design of the early aircraft carriers, has produced drawings for the "station" ships.

The flying boats will carry sufficient fuel to allow them to span the distances between every other ship, so that if they hear by wireless that the weather conditions are bad near one ship they can fly on to the next. The ships, which will be between 700 feet and 800 feet long and 120 feet wide, will not be anchored but remain at set distances apart. On the northern route (two are proposed, north and south) between London and New York they will be 330 miles apart, and on the southern route 400 miles apart. The difference in local time between ship and ship will be half an hour.

SPEED OF 100 MILES PER HOUR

The aircraft will alight on the sea near a ship and will take in fuel through pipes. In ordinary circumstances, it will not be lifted on board.

Designs for flying boats carrying 60 passengers have been produced by Mr. Navarro; but at first it is probable that smaller 10

passenger machine will be employed. These when fully loaded will have a capacity for 950 miles flight. They will have a landing speed of only 40 miles per hour, and a full speed of well over 100 miles per hour. The wing loading will be 9.1 pounds per square foot. The engine will be placed in an engine room 6 feet wide to enable the mechanic to tend to it in flight. The fare for the London-New York journey would be £125.

"There is nothing risky or even experimental in the scheme," said an authority on civil aviation: "it is simply a matter of obtaining the capital, organizing the routes, and using the right type of machine. The risk is far less than that involved in running the proposed airship services, because we have a much more exact idea of the capabilities of heavier-than-air craft."

When the proposed routes are operating, they will link up with the present New York-San Francisco air line.

(From the British press)

British dockyard facilities

Financial circumstances will eventually force the authorities to face the big question of revising dockyard facilities in relation to present-day requirements. Had there been no unemployment question that would have been done long ago. In view of the new system of distribution which is transferring so much work to Malta, Portsmouth and Devonport, and in a lesser degree Portland, are the only home yards that need be maintained at full strength. Chatham and Sheerness are largely superfluous. Pembroke is wholly so, and Rosyth would fall within the same category were it not for the docks it possesses. But sending ships to Rosyth for docking is too costly a procedure to be continued as a permanent thing. It is, of course, well known that the Admiralty have been trying for a long time past to dispose of Pembroke, and practically, of Chatham and Sheerness as well. While the slump in shipbuilding continues there is no hope of any private firm taking over any of these establishments, especially as it is stipulated that they should also take over all the men now employed in them, to whom the Admiralty have no special obligation. So these yards are kept going as the lesser of two evils. To throw the men employed in them on an already overstocked labor market would be such a heartless action that no Government would do it while industrial affairs are in a parlous state. But there is little doubt that this adjustment of dockyard facilities to actual requirements is one of the subjects down for consideration and that it will be taken in hand as soon as conditions permit.

H. M. S. Furious—Aircraft carrier

On the completion of her present alterations in Devonport dockyard, the aircraft carrier *Furious*, Capt. J. L. Pearson, C. M. G., is ordered to proceed to Portsmouth, her manning port, to recommission and to embark aircraft equipment. The date at present fixed for her completion is early September. The *Furious* will be one of the first ships to be affected by the new scheme of training of naval officers as pilots in the fleet air arm, five lieutenants, R. N., having been appointed to her for naval duties and also for pilot duties in *No. 404* and *443* flights. During the time the *Furious* has been paid off into dockyard control her officers have been available for duty with the cruisers *Courageous* and *Glorious*, which are being converted into aircraft carriers.

(From the German press)

The Island of Cyprus—A British Colony

The newest naval base in the Mediterranean

The publication of the King of England's proclamation, to the effect that the protectorate was annulled and that Cyprus was henceforward a British colony, was made by the chief commissioner, Sir Malcolm Stevenson on May 1 at Nikosia, capital of the island. We are told by the Limassol (a port) papers that this announcement was received by the assembled population in "significant silence," and that immediately afterwards the Greek archbishop presented a protest in the name of the church and the people to the present governor, Sir Malcolm Stevenson, the substance of the protest being that nothing but a union with Greece could satisfy the wishes of the people.

By this action Great Britain has declared her intention of definitely occupying the Island of Cyprus which as an unprofitable possession had often enough been treated as an object of exchange. The British occupied Cyprus shortly after the Berlin congress in the summer of 1878. The extravagantly prodigal Sultan Ismail had fallen into the hands of European usurers; his authority in Egypt was shaken, and it seemed very advisable to have a basis for the British fleet in the neighborhood of the Suez Canal. Salisbury expected a reward from the Turks in return for the assistance they had received from England after the Russian preliminary peace of San Stefano and during the Berlin congress. An agreement was therefore concluded with the Sublime Porte by which the Island of Cyprus was subjected to British control under the sovereignty of the Sultan, after the pattern of the Austrian occupation of Bosnia. In

return Great Britain was to assist the Sultan in carrying out the internal reforms to which he was held by the Berlin congress. The population of Cyprus, now happily freed from the "Turkish yoke," were made to pay the price of this political transaction. They were subjected to a yearly tribute of £92,800, which was to cover the interests and amortization of the loan made by the city of London to the Turkish allies during the Crimean War of 1855.

In order to have a free hand over the island, England suggested a complete recession which was to be effected simultaneously with England's entrance into the Bagdad Railway concern. When these negotiations were cut short by Turkey's entrance into the World War, the English Government issued a decree by which the Turkish sovereignty over Cyprus was annulled and the tribute abolished (November, 1914). The loan of 1855 was to be added to the innumerable undecided questions of Turkey's pre-war debts. But the ultimate fate of Cyprus still hung in the balance. On December 23, 1920, Great Britain and France signed an agreement concerning the mandate countries in the Near East, stating (Art. 4) that, in view of the geographical and strategical position of the Island of Cyprus in front of the Gulf of Alexandretta, Great Britain promised not to enter into any negotiations concerning the rescission or abandonment of the island without the previous consent of the French Government.

At present it seems that the growing supremacy of France in the Mediterranean and in the Near East has caused England to seek a consolidation of her position in Cyprus, with the effect that, contrary to the desires of the majority of the population, Cyprus has been declared a British colony. The 200,000 Greek inhabitants are designated as a "quantité négligeable." The number of the elected Greek members of the legislative council has been raised from 9 to 12, besides 3 Mohammedan and 6 appointed members, but the subjects of foreign states have been deprived of either active or passive right of vote. This measure has excited great dissatisfaction and has effectually excluded Greek patriots from participation in the politics of the island.

The most important point is, however, that each French concession to Turkish interests in the Bagdad Railway or at Alexandretta can now immediately be balanced by a reinforcement of England's strategic position in Cyprus.

Note on Baltic cruise

According to the Moscow correspondent of a German paper the recent visit of the English squadron to Baltic waters in the imme-

diate proximity of the Russian coast is viewed in Moscow as an unfriendly act toward the Soviet Republic. In this connection the anticipated arrival of Italian war vessels in Leningrad on June 25 has especial significance, in view of Italy's dissentient attitude with regard to the policies of the Entente in certain important questions of international politics.

ITALY

THE NAVAL REVIEW AT OSTIA

On Sunday, July 5, Premier Mussolini, Minister of Marine "ad interim," reviewed the Tyrrhenian Fleet anchored off Ostia (ancient port of Rome). The fleet, under Vice Admiral Simonetti, consisted of 18 units, as follows:

BATTLESHIPS

Cavour, flagship, Captain Slaghek.

Andrea Doria, division flagship, Rear Admiral Giovannini, Captain Biancheri.

Giulio Cesare, Captain Castiglioni.

Dante Alighieri, Captain Bernotti.

CRUISERS

Ancona, division flagship, Rear Admiral Monaco, Captain Amici-Grossi.

Bari, Captain Bianchi.

Taranto, Captain Baistrocchi.

Quarto, Captain Mancini.

Rossarol, Commander Rochira.

(This division is composed entirely of ex-German cruisers.)

DESTROYERS

Riboty (flotilla leader), Captain Menini.

Papa, *Prestinari*, *Cascino*, and *Cantore*, first squadron of destroyers.

Fabrizi, *Medici*, *La Masa*, and *La Farina*, second squadron of destroyers.

Premier Mussolini went on board the *Cavour* where he reviewed the officers of all the units and the ship's company. He was accompanied by Rear Admiral Sirianni, undersecretary of state for the navy; Vice Admiral Acton, chief of general staff; Captain Cantu, assistant chief of general staff; Captain Bucci, head of the cabinet of the Minister of Marine.

After this Premier Mussolini, on board a MAS (submarine chaser) reviewed the other units of the fleet.

The royal commissary of the city of Rome offered the officers of the fleet an official luncheon at Ostia.

Later there was a dance and illuminations.

ITALY

COMING ANNUAL MANEUVERS

The naval squadron which was recently reviewed at Ostia by Mr. Mussolini proceeded to Spezia for target practice and torpedo firing. Flotillas of MAS (submarine chasers) and submarines have joined the two divisions commanded by Admirals Monaco and Giovannini. The fleet will remain at Spezia until July 20. It will then return to Gaeta, where other practices will take place preceding the annual maneuvers.

The fleet will then be divided into two forces, the blue and the red. The blue, i. e., the national fleet, will be commanded by Admiral Monaco di Longano; the red by Admiral Giovannini, at present commanding the division of battleships.

The subdivision of the naval forces will be entirely different from last year. Admiral Giovannini commanding the red fleet will have 50 per cent more units than the blue, because the office of the chief of general staff logically considers that other national forces would be employed elsewhere, especially on escort duty in the Eastern Mediterranean. It is expected that Admiral Giovannini will be given three dreadnaughts (the blue will have two) and a considerable number of cruisers and destroyers. The blue will have a good number of submarines and submarine chasers for the defense of the coasts—a very important factor in the problem.

The maneuvers will take place in the waters between Sicily and Sardinia from August 26 to 31. It is an assumption of the problem that the red is in full possession of Sardinia and that his base is Cagliari. (Admiral Giovannini's fleet will concentrate here in the first fortnight of August.) He will escort a transport which is supposed to carry an army corps, and, avoiding the watchfulness of the blue, he will disembark his forces either at Trapani or at Palermo (with a view to occupying the entire island), these being the only ports that can permit of the disembarkation and supply of a large number of troops with artillery and material.

The blue, with the aid of the land forces and the coastal batteries, will endeavor to prevent the disembarkation of red troops.

The general director of the maneuvers will be Admiral Diego Simonetti, commander in chief of the fleet. He will embark with his staff on the yacht *Aurora*.

The cooperation of the air force will be very important. All the battleships and cruisers now have an observation plane on board, which is very useful for scouting. The seaplane squadrons of Catania, Naples, Cagliari, and Sciacca and two dirigibles will take part in the maneuvers, most of them on the blue side.

The king will be present at the maneuvers on board the *Savoia*, the new royal yacht which is being refitted in the yard at Palermo. He will embark either at Civitavecchia or at Livorno together with Admiral Acton, chief of general staff of the navy, and Admiral Sirianni, undersecretary of state for marine. The *Savoia* will follow the entire strategic development of the problem and will keep in contact with both forces.

Senators, deputies, and journalists will go on board the *Citta' di Trieste*.

ITALY

THE BARACCA AIRPLANE CONTEST

On Sunday, June 14, the finals for the Coppa Baracca airplane contest were held at the airdrome at Cinisello, near Milan.

The Baracca cup contest or airplane race was first held in 1921. At that time 33 entries were made, 21 airplanes actually took off, but only 4 completed the race. In 1922 there were 54 entries, 39 machines took off, and 14 completed the course. In 1923 there were 88 entries, 71 machines took off, and 44 completed the course. Captain Mazzucco was pilot of the winning machine both in 1922 and in 1923, and in accordance with the rules of the contest he was awarded permanent possession of the cup. In 1924 a new cup and 100,000 lire in cash was provided by Grand'Ufficiale Giuseppe Rusconi. The new rules provided that the contest would be between squadrons of military aircraft instead of between individual aircraft. The rules also provided that the cup will be permanently awarded to the squadron which wins the competition twice (not necessarily in consecutive years). In the 1924 contest seven squadrons competed. The fourteenth bombardment squadron (Caproni Ca-3 machines) won.

The 1925 Baracca cup competition was divided into:

- (a) Preliminary or eliminatory tests.
- (b) Final competition.

Throughout all tests all machines were required to carry standard war equipment, except that equivalent sand load was substituted for bombs.

The preliminary tests took place June 3 to 10 and the finals on June 14.

The eliminatory tests were as follows:

(a) Pursuit squadrons—

1. Climb test, entire squadron in formation.
2. Photomachine-gun test, entire squadron in formation: target, a captive balloon 4 meters in diameter.

(b) Bombardment squadrons—

1. Climb test, squadron in formation.
2. Bombing test, squadron in formation; altitude, 1,000 meters; target, circle 20 meters in diameter.

(c) Observation squadrons—

1. Spotting artillery fire, individual planes; radio correction for three shots; altitude, 1,000 meters.
2. Photographic test, individual planes; required to proceed and photograph a definitely prescribed locality.

The following squadrons were designated by the commissariat of aviation to participate in the eliminatory tests:

Pursuit—

- 72d squadron—Spad XIII.
- 75th squadron—Ni-29.
- 77th squadron—CR-1.
- 81st squadron—Spad XIII.
- 91st squadron—Ni-29.

Night bombardment—

- 10th squadron—Ca-3.
- 14th squadron—Ca-3.

Day bombardment—

- 1st squadron—BR-1.
- 4th squadron—BR-1.
- 5th squadron—BR-1.

Observation—

- 27th squadron—A-300/4.
- 115th squadron—A-300/4.
- 31st squadron—A-300/4.
- 33d squadron—A-300/4.

As a result of the eliminatory tests the squadrons of each class in order of merit were as follows:

Pursuit—

- 81st squadron—Spad XIII, qualified for finals.
- 77th squadron—CR-1, qualified for finals.
- 75th squadron—Ni-29, qualified for finals.
- 72d squadron—Spad XIII, eliminated.
- 91st squadron—Ni-29, eliminated.

Night bombardment—

- 14th squadron—Ca-3, qualified for finals.
- 10th squadron—Ca-3, qualified for finals.

Day bombardment—

- 5th squadron—BR-1.
- 1st squadron—BR-1.
- 4th squadron—BR-1, eliminated.

Observation—

- 31st squadron—A-300/4, qualified for finals.
- 33d squadron—A-300/4, qualified for finals.
- 115th squadron—A-300/4, qualified for finals.
- 27th squadron—A-300/4, eliminated.

The number of squadrons allowed to participate in the finals were :

Pursuit, 3 squadrons.

Night bombardment, 2 squadrons.

Day bombardment, 2 squadrons.

Observation, 3 squadrons.

Each of the squadrons (for the purpose of the contests) consisted of the five machines of the type indicated.

The final test (or race) was for speed and reliability. The course consisted of four closed circuits, each starting and finishing at the Cinisello aviation field. The lengths of these circuits were :

209 kilometers, 219 kilometers, 187 kilometers, 283 kilometers ; aggregate, 848 kilometers.

The machines of each squadron took off in pairs and each pair covered one of the circuits. For instance, machines Nos. 1 and 2 covered the first circuit; upon the return of this pair to Cinisello Nos. 3 and 4 took off and covered the second circuit; upon their return Nos. 5 and 1 covered the third circuit, after which Nos. 2 and 3 covered the fourth circuit. The various types of planes were assigned a definite speed which they were to maintain throughout the course, and their speed was checked by timing at various points along the circuit. Also the planes were required to drop messages within a limited area at prescribed points along the course. The contest was very well managed, the pairs (sections) took off promptly on signal from the field manager's stand, and there was no confusion. The only casualties were: First, the rear plane of a CR section got in the wind stream of the leading plane while taking off and ran into a BR-1 on the line, seriously damaging both planes; second, two Caproni Ca-3 had forced landings; third, an A-300/4 had forced landing and burned up. Nothing spectacular was attempted, except that at the end of the meet individual pursuit planes performed acrobatics and two exhibition parachute jumps were made.

6. It is the intention of the Italian authorities to make the rules for the Baracca cup such that the winning squadron will be the most all-round efficient squadron. With this in view the mark of merit assigned is a percentage of the best possible performance of the material if the personnel efficiency were 100 per cent. The squadron which gets the highest average mark of merit is declared the winner.

The eighty-first pursuit (Spad XIII machines) was declared winner of the 1925 competition. The average efficiency assigned this squadron was 76 per cent.

ITALY

MISCELLANEOUS NOTES

July, 1925

Cruise of flotilla leaders

The three Italian scout cruisers (flotilla leaders) *Tigre*, *Leone*, and *Pantera*, under the command of Captain Cavagnari, recently relieved of his duty as chief of cabinet to Admiral Thaon de Revel, ex-Minister of Marine, are now at Glasgow, where they have met with an enthusiastic reception. An average of 15,000 persons daily have visited the ships.

The visit of these cruisers has caused much satisfaction in the Italian colonies in England and Scotland.

Admiral Freemantle, commander in chief of the Naval Department of Portsmouth, congratulated Captain Cavagnari on the efficiency, fitness, and organization of the ships and crews.

The technical authorities in Scotland were impressed above all with the speed of the cruisers (35 knots).

From Glasgow they will touch Edinburgh, and thence proceed to Norway, Denmark, Germany, Holland, Belgium, France, Portugal, Algiers, Tripoli, Malta, and Italy, covering a total of 12,000 miles.

Naval command for Dodecanese

A royal decree recently enacted institutes a naval command for the Dodecanese.

All naval units and services of the royal navy ordered for duty to the Dodecanese will be under said command.

At Portolago (Island of Lero) will be established a naval base.

Daniele Manin launched

On June 15 the destroyer *Daniele Manin* was launched at Fiume from the "Cantieri Navali Carnaro."

The characteristics of this destroyer are as follows:

| | |
|---------------|-----------------------------|
| Displacement | 1,300 tons. |
| Length | 90.16 meters (295.72 feet). |
| Width | 9.20 meters (30.18 feet). |
| Draft | 3.25 meters (10.8 feet). |
| Horsepower | 35,000. |
| Maximum speed | 35 knots. |

Armament :

Four 120/45 mm. guns (4''.723) in two double mounts.

Two triple torpedo tubes, 533 mm. (21 inches).

Officers, 6.

Petty officers, 16.

Enlisted men, 110.

Purchase of Italian seaplanes by Spain

Supplementing information on page 73 of July, 1925, Bulletin, the following is of interest:

The Spanish Government has purchased 12 torpedo and bombing seaplanes from Italian firms. Six of these are of the M-24 type, built by the Macchi Co., and six of the S-55 type, built by the Savoia (SIAI) Co.

The six M-24's were flown from the Macchi factory at Varese to Barcelona during the latter part of May, 1925, and delivered to the Spanish authorities. The six S-55's will be constructed after the Savoia Co. completes the orders of 10 for the "Aero-Espresso Italiana" (the Brindisi-Constantinople line) and 12 for the Royal Air Service. All these planes are equipped with two Lorraine-Dietrich 450-horsepower engines.

Activities in Sicily

The work of fortifying the northwest corner of Sicily has become very active lately. At Bonagia, about 10 kilometers north of Trapani, several cannon of large caliber have been installed in the fortifications. Armaments have also been increased at Colombaia, near Trapani.

Fortifications are also being constructed on Favignana and other islands lying north and west of Trapani.

No work, however, has yet been started on the proposed naval base at Castellamare del Golfo. The airdrome at Marsala is being utilized by machines which have their base there.

Contretemps with Afghanistan

In reference to the diplomatic incident between Italy and Afghanistan caused by the execution of an Italian engineer, Dario Piperno, found guilty of the murder of an Afghan policeman, pardoned at first and then executed following his attempt to escape from prison, the following statement was made by the undersecretary for foreign affairs before Parliament:

The Italian Government has made the following demands on the Afghanistan Government:

(1) Public demonstration by the Afghanistan Government, viz, visit of the Minister of Foreign Affairs to the Italian minister, while a company of Afghan soldiers, with flag, will salute the Italian flag.

(2) Reimbursement of the sum of money paid by the Italian Government to the family of the murdered policeman.

(3) An indemnity of 7,000 English sterling pounds, to be paid to the Italian Government.

In the meantime, while awaiting an answer to these demands, the Italian Government has temporarily confiscated all bank deposits of Afghanistan citizens, and also a large cargo of arms, paid for and ready to be shipped to Afghanistan.

Out-of-date battleships

The following article by Admiral Ettore Bravetta appeared in the *Messaggero* of June 16, 1925. Admiral Ettore Bravetta is also the author of the article translated in reference (a). He appears to be a much appreciated expert in naval matters and was recently awarded a gold medal "for promoting the study of naval science." This honor has only been awarded to 12 men in Italy.

The visit of the French squadron to Naples and the consequent cordial feeling between the Italian and French fleets will strengthen the sympathy between the two navies and will destroy the disagreeable impression created by recent attempts of the French press to diminish the value and importance of certain Italian naval operations in the World War and more especially the rescuing of the Serbian army. A sentiment of cordial alliance can not exist without the loyal recognition of mutual merits and considering the uncertain future it is far better that sister nations should entertain a friendly feeling for each other, seeing that they have common interests and not contrasting ones.

The naval meeting at Naples has a marked political significance and not a military one.

In old times when England used to keep up the "two powers standard" she would certainly have taken an interest in this visit, but later the strength of the German navy obliged her to abandon this naval policy for that of the "one-power standard," and all powers based their strength on dreadnoughts and superdreadnoughts.

The recent war proved the uselessness of these types that have not even the military value of second-class battleships that Senator Chéron attributes to them in his report on the budget of the French navy.

The French line ships belong to the *Lorraine* type (25,500 tons, ten 14-inch guns and 20 knots per hour) and the *Courbet* type (same displacement and speed, twelve 13½-inch guns).

The Italian line ships belong to the *Duilio* and *Cavour* types (22,500 tons, thirteen 13½-inch guns; 21 or 22 knots).

They were all built between 1910 and 1912 and, though extremely up to date at that time, they can not now resist a modern torpedo, as proved by the sinking of the *Viribus Unitis* which was equivalent to them, and neither could

they resist aircraft bombs such as were used by the United States in the sinking of the *Ostfriesland*.

All the British units of this kind were stricken off the list between the armistice and the treaty of Washington on the advice of Admiral Fisher, who used to exclaim: "Scrap the whole lot." Twenty-four battleships were thus put out of commission. The United States did the same and have no more dreadnoughts of this type.

The United States, Great Britain, and Japan accepted the limitations of the treaty of Washington in view of the possibilities of modern offense. By this treaty neither Italy nor France can start building a 35,000-ton "post-Jutland" before 1927, and as the cost of this type has been calculated to be about 800,000,000 lire it is improbable that the above countries should undertake the construction of any even after this time limit. It is rumored that France is thinking of building two 17,000-ton cruisers.

The fact is that neither Italy nor France can have in the near future a fleet of any great value. Smaller nations would not be alarmed by their navies, it having been proved that barrages are often ineffective and that a torpedo or an aircraft bomb can sink France or Italy's best battleships. As for Great Britain she could sink all the Italian and French fleet with the *Nelson* and the *Rodney*, now under construction and which are intended for England's Mediterranean fleet.

The man in the street, of course, is wondering why so much money is being spent on keeping these ships in commission while it might be spent for better and more efficient war preparations.

It is said that battleships are indispensable for the prestige of a country. This reason, however, appears insufficient, as a division of lighter craft would be equally effective. They are also considered useful for target practice and to give admirals and captains something to command when they have to go to sea. But nowadays officers of higher ranks should command naval divisions and need not be embarked on a battleship; in fact, naval critics abroad have come to the conclusion that the commander in chief of a fleet should be embarked on an aircraft carrier or on an airship. As for captains, they can command 8,000-ton or 10,000-ton cruisers, and just one single caliber ship in reduced complement can be used for the instruction of fire-control directors. Finally, it has been said that France and Italy are keeping their battleships in commission because if one of the two does so the other must follow.

It is to be hoped that no war will come to pass between Italy and France and that they will continue to be allies notwithstanding small and superficial misunderstandings. However, should there be a war between the two countries dreadnoughts would always be useless, as there could never be a "bataille rangée" as in old times.

The best result of the visit of the French division to Naples would be an accord between France and Italy to scrap their dreadnoughts. Our steel factories need scrapped iron.

But even if this accord were not possible the Minister of Marine "ad interim," who is not tied down by traditions and *esprit de corps*, might take the wise decision of putting them out of commission and spending the money thus saved on torpedo boats, submarines, mines, and aircraft that would not only insure Italy against offense from the sea but would make the Mediterranean dangerous for any nation hindering our legitimate interests.

The semirigid dirigible N-2

The *N-2* semirigid dirigible—7,000 cubic meters (247,350 cubic feet), fast type for low-altitude operations—has been completed and is now undergoing trials at the Ciampino airdrome. Three successful trial flights have been made to date. No detail performance data is yet available.

Proposed commercial air lines

It is understood that, at a conference held at the commissariato of aviation recently, it was decided that effort will be made to inaugurate the following commercial air lines this year:

(a) *Turin-Venice-Trieste*.—This is to be operated by the S. I. S. A. Co., using CNT-10 seaplanes.

(b) *Rome-Genoa*.—This line is to be operated by the Piaggio Company, using Dornier-Wahl all-metal seaplanes, equipped with two Jupiter engines.

(c) *Genoa-Barcelona (Spain)*.—This line is also to be operated by the Piaggio Company, using Dornier-Wahl seaplanes.

NOTE.—The above are in addition to the Brindisi-Athens-Lemnos-Constantinople line which is already organized and is expected to start operation in August. This line expects to operate a Brindisi-Naples-Rome extension, using the same kind of planes (S-55) as on the Brindisi-Constantinople run.

In order to carry into effect the above program it is estimated that the appropriation for "aerial traffic" will have to be raised from the 15,000,000 lire already allowed in the current budget, to 45,000,000 lire.

Visit of aeronautical mission to England

During the latter part of June an Italian Aeronautical Mission, composed of General Ettore Prandoni, Squadron Commander Pier Francesco Bitossi, and Major Bartozzi (engineering division) spent several days in England.

The purposes of this mission were to return the visit which Sir Samuel Hoare made to Italy in April, and to attend the aviation meet given by the British Royal Air Force at Hendon on June 27.

British seaplane squadron visits Italy

A British squadron of five bombardment seaplanes from Malta, commanded by Lieutenant Colonel Welsh, is cruising through Italy returning the recent visit to England of the Italian squadrons under Commanders Ferrarin and Coppola.

On their arrival in Sicily, July 7, 1925, the British aviators were received by the One hundred and sixty-third squadron, commanded by Commander Guascone and Count Di Robilant, representing the undersecretary for aeronautics. The British squadron proceeded to Messina, escorted by the squadron of Commander Guascone.

Their itinerary includes Naples, Orbetello, Sardinia, and Rapallo.

Official dinners were given at Syracuse and Naples. The following authorities were present at the latter: Commander Coppola, commanding the air station at Syracuse; Commendator Tempesti; Mr. Conti, vice prefect of the city of Naples; the British vice consul; Major de Rosa, representing the army corps; Captain De Rossi, representing the national militia; Mr. Imbert, of the Aero Club, etc.

JAPAN

VISIT TO THE NAGATO AND HARUNA

HARUNA

The *Haruna* at the time of the visit was in drydock undergoing extensive alterations. All turrets, secondary battery guns, smokestacks, uptakes, boilers, top masts, and searchlights were out of the ship. Statement was made by escorting officers that all heavy weights had been removed from ship to permit construction of anti-torpedo bulges or blisters. Other work to be done consists of repairs to boilers and main engines, installation of new armored protection deck and some alterations to foremast. Statements were also made that the repairs and alterations would be completed by September, 1925; that the *Haruna* went into dock about June 1, 1925, and that the modernization work commenced about September 1, 1924.

It was noticed on going on board that as far as the outer hull is concerned there is no evidence of blister construction having been started. The side armor plates were still in position, and the hull plates below the armor belt have been recently cleaned and re-leaded.

Another officer stated that the *Kaga* and the *Haruna* are the first two ships in the Japanese Navy to be equipped with antitorpedo bulges. Following armor observations were made: Top of side armor appears not to be greater than 4 inches thick; athwartship casemate vertical armor is 5 inches thick; horizontal deck armor over engine-room compartments is 2 inches. (This was noticed while going down ladder into engine room.) Engine-room hatch protected by vertical armor plates 1 inch thick by 8 inches deep; vertical conning tower armor is not more than 12 inches thick.

(This was observed while passing to the rear of the conning tower, the conning-tower door, which is on the center line at the after end of conning tower, being open.)

About amidships and outboard on each side of the ship on the main deck just above the secondary battery gun deck the armored hood of a conning tower projects about a foot above the deck. This is the top of an armored tube which extends down into a secondary battery gun compartment. The diameter of this armored tube is about 3 feet; there are about 2-inch slots cut in the hood giving outboard view, and thickness of armor is about 4 inches. This was stated to be a protected station for the secondary-battery division officer. This armored station is apparently not fitted with a director sight, as there is no hood for either periscope or telescope.

There are four inclosed circular stations on the after legs of fore tripod mast, two on each side, which are probably used for secondary-battery fire control. Each of these stations are about 4 feet in diameter and about 6 feet high and is inclosed by thin steel plating of not more than one-fourth inch in thickness. Escorting officers stated that these stations were used for submarine lookouts. They, however, appear to be unusually large for this purpose only.

There is no armored conning tower or station in or around the aftermast nor anywhere else on the weather decks.

The 6-inch shells are stowed in racks running along the outboard bulkhead on the deck below the 6-inch gun deck. One endless chain hoist to each gun compartment delivers the shells from this deck. These chain hoists may be operated by either motor power or by hand.

There was no apparatus on the weather decks for the stowage, handling, or launching of airplanes.

There are four old type hand-loaded 3-inch antiaircraft guns of about 40 caliber at present on board. These are located on the main weather deck, two on each side opposite the main mast.

The barbettes were covered with canvas, so that thickness of barrette could not be seen.

No gas masks were seen, and escorting officer said they had none on board.

The *Haruna* is not equipped for laying mines or depth charges.

All torpedo net booms have been removed.

There were no range finders mounted, and but one range finder mount was seen. This was on the bridge and could be moved from one side of bridge to the other by a track.

Both voice tubes and telephones are used for secondary-battery control.

On the navigating bridge was seen numerous voice tubes arranged outboard along the rail; one Lord Kelvin liquid compass, 7½ inches;

one gyro repeater on a high mount on center line; mechanical steering wheel; a vertical brass athwartship shield, about 4 by 4 feet, used as a spray shield and for supporting telephones and other electrical control instruments (this shield was bare of all instruments and wiring at time of visit); range finder mount noted above; two mechanical engine-speed indicators, one on each side of steering wheel. Arranged around rear of conning tower are five emergency cabins.

Magazine flood controls are on deck below secondary-battery gun deck.

There are five boiler rooms, each extending the width of the ship. Two of these boiler rooms were looked into from the weather deck and were stripped bare of boilers and auxiliaries. Escorting engineer officer stated there were 30 boilers and four dynamo rooms. None of the dynamo rooms were seen.

There are two engine rooms separated by fore and aft unpierced bulkhead each containing two Curtiss turbine engines. The port engine room was entered. Turbine casings were intact, but many auxiliaries, pipes, and valve manifolds were broken down. The engine room is very crowded and was very dirty.

Foam type fire extinguishers were observed in various parts of the ship all painted red.

Statement was made that the *Haruna* carried 1,000 tons of oil and still used coal.

There are twin balanced rudders placed about 30 feet forward of the stern.

The parts of the ship through which I was escorted were weather decks, navigating bridge, secondary-battery gun compartments, portion of the next deck just below the gun compartments, port engine room, and officers' quarters.

All parts of the ship seen except officers' quarters and weather decks were very dirty.

The *Haruna* is now commanded by Capt. N. Kondo, who also commands the cruiser *Yakumo* while the *Haruna* is in reserve.

It was stated that the complement consists of one-half regular crew while in reserve.

It is apparent that the *Haruna* is undergoing a thorough overhauling as well as extensive modernization work.

Inasmuch as the boiler rooms are completely stripped it appears probable that the *Haruna* is being fitted for oil burning exclusively, but this can not be confirmed as yet.

It is also probable that range finders are being installed in each turret, and fire-control facilities on foremast are being modified, (It was noted during a visit to Kure Yard some time ago that all turrets of the battle cruiser *Hiei* were being altered for installation of range finders.)

NAGATO

At the time of the visit the *Nagato* was anchored in the outer harbor and is being employed as a gunnery training ship. Capt. S. Nakajima is in command, and the crew was said to consist of 1,300 men and 70 officers, including warrants.

Following parts of ship were visited: Weather decks, passageway on 5.5-inch gun deck (permission was refused to enter gun compartments and to inspect secondary-battery guns), navigating bridge, Captain's cabin, wardroom sick bay, operating room, carpenter shop, and machine shop.

As a test, permission was asked to enter turrets, conning tower, and fire-control station in foremast, but as was expected permission was not granted. The general impression gained during the visit was that the *Nagato* is well kept, clean, a smart ship, and a first-class fighting unit.

The *Nagato* is fitted as a flag ship, and escorting officers stated that such fittings are provided on every battleship. The captain's cabin is rather small and is situated outboard on the port side of ship just forward of the admiral's cabin space.

The forward conning tower in the *Nagato* is too small to accommodate the flag officer in addition to the other necessary battle personnel. There is no armored conning tower aft on this ship, as is shown in 1924 edition of Jane's Fighting Ships.

The bridge under the navigating bridge is protected by what appears to be splinter-proof light armor, but it was not possible to get close enough to observe the actual armor thickness.

The escorting officers stated that the flag officers battle station was on the bridge just as was the case during the Russo-Japanese war. This statement may be correct, since there is no heavily armored station on the ship above the weather deck except the conning tower abaft No. 2 turret.

The conning tower on *Nagato* is very much smaller than in the later United States battleships.

Concerning location of the secondary-battery guns of the *Nagato*, of the sixteen 5.5-inch guns which can train well ahead 12 can fire on a bearing well forward on the engaged bow irrespective of the bearing of the main battery target. These guns on the *Nagato* are placed further aft and further outboard than is the case on our later battleships, but are considerably nearer the water line.

On the navigating bridge of the *Nagato* are three gyro repeaters, one forward on the center line and one outboard on each wing of the bridge. These were the only gyro repeaters seen. As permission was refused to visit the bridge under the navigating bridge no information could be obtained as to gyro repeaters on this bridge.

Following range finders were seen on board: (1) One 30-foot metal covered on circular platform just above yardarm; this range finder is mounted on truck with wheels; a track running around the circular platform permits this large range finder to be moved around the platform through 360°, thus permitting all-around range-finder readings; (2) two about 15-foot range finders, metal covered, on platform just below yardarm; it is likely that these two range finders can also be moved on a track around this platform; these range finders are believed to be for main battery, in addition to the 30-foot range finder, and appear well located in case of main battery divided fire; the front portion of the metal screen around this bridge is raised about a foot above the rest of the screen and is probably so raised to serve as a wind shield; the two range finders are high enough to take readings over this raised portion; (3) on the forward part of the navigating bridge but outboard on each side is one metal-covered 6-foot range finder on a fixed mount; these range finders are the same as the one that can be seen in photograph No. 1; these two range finders are believed to be for secondary-battery control and are capable of taking readings from each quarter to ahead; (4) also on the navigating bridge is a range-finder mount which can be moved from one side of bridge to the other on tracks; the range finder was not in place at the time of the visit, but the mount is suitable to carry a 6-foot range finder; this range finder is intended for navigational purposes; (5) one target range finder mounted in each turret; (6) one range finder about 9-foot on afterbridge below searchlight platform; this range finder is believed to be for torpedo-fire control; apparently the only range finder that is available for flag use is the navigation range finder on the navigating bridge; (7) there is one mount for antiaircraft purposes on each side of the upper weather deck abreast No. 1 stack; range finder not in position at time of visit.

The only information obtained about armor is that on the *Nagato* there is no vertical athwartship casemate armor above the lower secondary-battery gun deck.

There are no airplanes, catapults, nor any arrangements for the stowage, handling, or launching of airplanes. It is believed that turret-launching platforms are used but none were in position.

The antiaircraft guns on the *Nagato* are the old type 3-inch, 40-caliber guns similar to the guns shown on post card of *Mutsu*. There are, however, seven antiaircraft guns on board instead of four as previously reported. Four of these are abreast No. 1 stack, two on each side, and three are aft on the weather deck just abaft the afterbridge.

No gas masks were seen, and statement was made that there were none on board except a few for fire purposes.

Judging from observation and from statements made by the escorting officers no provisions have been made for prevention of the entrance or dissemination of warfare gases, or for cleaning out such gases after an attack.

The secondary-battery guns are not power loaded nor are the antiaircraft guns.

Observations concerning the secondary-battery guns were made while passing by the gun compartment doors. These guns are hand elevated and trained. In some compartments there is one gun and in some two guns. Near each rack is a telephone and voice tubes. No electric indicators were seen. All guns were covered with canvas. A semicircular splinter-proof thickness armored screen trains with the gun and closes the gun port opening.

In each gun compartment on the athwartship bulkhead were seen air bottle groups said to be for ejecting gunpowder gases. Escorts stated that the secondary battery was divided into four groups and that all fire-control stations for both the main and secondary batteries are in the foremast.

Following turret observations were made: Each turret fitted with internal range finder: No. 2 turret is fitted with two sight hoods, one on each side and to the rear of the two pointers' sight hoods. The trainers' sight hood on each turret is on the center line between the pointer's hoods. A stand holding a small motor is located on each turret approximately in the position of the similar motor shown on *Mutsu* turret post card. This motor is to operate the ping-pong gear for training pointers. On No. 1 and No. 4 turrets are two similar ventilating cowls on the turret roof just abaft the range finder. These cowls are arranged horizontally. On turrets No. 2 and No. 4 two vertical ventilating cowls are mounted on the turret roof forward of the range finder. This ventilator arrangement indicates that the turrets are divided into separate gun compartments by a vertical fore-and-aft bulkhead: there are no other fittings on the *Nagato's* turret roofs except spar fittings for the ping-pong gear. The two extra sight hoods, which are only on No. 2 turret, indicate that this turret is fitted to take control of the fire when the aloft position is shot away, one sight being probably a director sight and the other either a duplicate director sight or for a fire-control officer. The gun ports of *Nagato* are not cut into the roof of turret.

The only target-practice information obtained was that there is no big gun short range practice held for training of pointers. Pointers are trained by subcaliber practice and prize money paid on the results of such practices. This information is believed to be correct, as it was volunteered in answer to questions concerning prize money.

On the foremast of *Nagato* are eight large searchlights and two signal searchlights, all on the two platforms next above the navigating bridge. There are two searchlights aft on platform above afterbridge. On the lower gun deck were seen several searchlight trucks which were said to be used to hold and to transport searchlights to a behind-armor position during a day action.

While walking about the ship no lights which gave the appearance of auxiliary lights were seen. Escorts stated that there was no storage-battery lighting system.

The *Muttsu* and *Nagato* can be differentiated as follows: *Muttsu* bridge range finders are higher than corresponding range finders on *Nagato*, and port one of these on *Muttsu* is higher than starboard one.

The *Muttsu* has a double auxiliary radio antennæ extending aft from starboard side of foreyard and another extending forward from port side of middle yard of mainmast. The *Nagato* has a single arm antennæ running forward from each side of middle yard of mainmast.

The raised portion of metal wind shield of platform on foremast just under foreyard extends around to the sides on *Muttsu* and has slots cut into it, while on *Nagato* the shield is not slotted and raised part is only in front side.

The main radio antennæ of the *Nagato* consists of four squirrel-cage antennæ suspended from the upper yard of mainmast, two on each side. The aft portion of main antennæ is secured by downhaul to a stanchion on No. 3 turret, and the forward part is supported by a downhaul passing through a block in the foretop. The rat tail leads from the forward part of the antennæ down to radio room at base of foremast.

One auxiliary squirrel-cage antennæ extends forward from each side of middle yard of mainmast and the rat tails from both of these antennæ join the rat tails from the main antennæ. Each antennæ consists of eight wires. There is also a rat tail lead in on the port side of upper weather deck just abaft foremast, but no antennæ was hooked up to this at time of the visit.

Escorting officers stated that there was a second radio room below behind armor to be used if upper radio room was destroyed and that there were no separate transmission and receiving radio rooms. All electric wiring seen was either plain or leaded.

The main side armor belt extends to within about 75 feet from the bow and stern. It stops just abaft the after gangway.

One very small machine shop was seen, with not more than six machine tools.

One small carpenter shop is located on the gun deck in the most forward compartment on this deck. It is very small and poorly equipped.

No torpedo tubes were seen.

There is a very extensive and complete ventilation system below decks.

The *Nagato* is not equipped with torpedo net booms.

Engine controls on the navigating bridge are mechanical.

From the best information available it is believed that the Japanese fire-control system is patterned after the British and that the fire-control instruments used are old type Vickers make.

Kite balloons are still in use for fire-control purposes and airplane fire control is yet experimental. Antiaircraft guns are old type, and little or no progress has been made in antiaircraft gun defense.

Information obtainable indicates that the forms of target practice engaged in by capital ships include day individual and division practices at 18,000 yards, a night big gun practice, and pointers' practice using subcaliber.

To find the range, the Japanese employ ranging salvos, using the ladder system, and claim to invariably find the target in three salvos. This latter statement is probably an exaggeration, but apparently indicates that the primary objective is to find the target with a salvo regardless of the expenditure of ammunition rather than by using single ranging shots.

JAPAN

NAVY MODERNIZATION PROGRAM

June, 1925

(From the Japanese press)

Japan's first navy replacement program, drawn up soon after the close of the Washington Conference, will be completed during the fiscal year 1928-29. This program was originally planned to be completed by March, 1928, but on account of the disaster of 1923 the Japanese Navy was obliged to extend the period of construction by one year.

Upon the completion of the first program, the Japanese Navy contemplates the construction of new cruisers to replace the old cruisers *Tone*, *Chikuma*, *Hirate*, and *Yahagi*, which will be removed from the active list in a few years.

Because of the terms of the Washington naval treaty a competition has been placed under way by the principal powers for the construction of 10,000-ton cruisers. For example, the British Government last year obtained the sanction of Parliament for the construction of

five cruisers, and it is understood that this summer Parliament will be asked to approve naval estimates which include the construction of five additional cruisers, all of which will have a displacement of 10,000 tons. These facts satisfactorily indicate Great Britain's determination to complete its naval program, which contemplates the construction of fifty 10,000-ton cruisers during the next 10 years.

The United States has obtained the approval of Congress for the construction of eight 10,000-ton cruisers, the keels of two of which will be laid in October of this year. It is possible that the United States may follow the example set by Great Britain and draw up a gigantic naval program.

Japan is unable to follow suit because of financial reasons. Nevertheless, the Japanese Navy is said to be drawing up a supplementary replacement program involving the replacement of four cruisers, four destroyers, and six submarines. The program will be spread over a period of five years, from the fiscal year 1926 to the fiscal year 1930, the total expenditures being estimated at yen 158,000,000. Of this sum the four cruisers will cost yen 100,000,000, the four destroyers yen 22,000,000, and the six submarines yen 36,000,000. During the next fiscal year yen 20,000,000 will be asked for the laying of keels.

Of the cruisers to be replaced the *Tone*, with a displacement of 4,100 tons, was constructed in 1910, and the other three, with a displacement of 4,950 tons, were constructed two years later. The four destroyers to be replaced, the *Umikaze* and the *Yamakaze*, displacing 1,150 tons, and the *Sakura* and the *Tachibana*, displacing 600 tons, were all built in 1911. The new destroyers will have a tonnage of 1,500 tons. The six submarines which will be affected, *Nami* Nos. 1 to 6, displacing from 286 tons to 304 tons, were constructed between 1908 and 1912; they will be replaced with 1,500-ton boats.

JAPAN

MISCELLANEOUS NOTES

July 1, 1925

Cruiser "Myoko"

The *Myoko* (10,000 tons) is building on the building ways at Yokosuka upon which the *Amagi* was being constructed prior to the earthquake of September 1, 1923.

Apparently very little progress has been made on the *Myoko* since only the keel and a few hull plates are in position.

This delay is probably caused by the repairing of the ways due to the earthquake damage.

Airplane carrier "Kaga"

The top deck of the *Kaga* at Yokosuka is flush from stem to stern and is the original main deck. There are no indications that a flying deck is to be constructed above the present top deck.

On the port side of the top deck what appears to be the beginning of the bridge is now under construction. This is the only change that is apparent in the appearance of the *Kaga* in the last eight months.

Submarine "I-58"

The submarine *I-58*, building at Yokosuka Navy Yard, is of the 1,500-ton type. The pressure hull is about three-fourths completed. The *I-58* is double hull and has two stern tubes arranged horizontally, as in the *I-1* class.

Fortifying Boso Peninsula

The following information is unconfirmed:

"The war department has decided on the fortifications of the Boso Promontory with a strong fortress built at Tateyama, and the Tokyo Bay fortified zone considerably expanded.

"The fortified zone of the Tokyo Bay has so far included part of Chiba Prefecture and Miura Promontory, but the new regulations will include within the fortified zone Nishizakimura, Shirahamamura, Nanauramura, and Chikuramura, which covers the entire southern half of the Boso Promontory.

"The local authorities in the Promontory have thus been duly notified of the above military project. Any attempt by the general spectators therefore to sketch or photograph any part of the Boso Promontory in and along the coast of which is now to take place from to-morrow the combined manuever of the army and navy, has by order been forbidden accordingly under the penalty specified in the Military Secrets Protection Act."

(From the Japanese press)

Submarines I-53, I-55

The *I-53* and *I-55*, now under construction at Kure, are scheduled to be launched on August 3 and September 2, respectively.

Destroyer No. 31 (1,445 tons) laid down

The destroyer No. 31 (1,445 tons) was laid down at Maidzuru on June 15, 1925.

Itinerary of training ship Iwate

The training ship *Iwate* will take the graduates of the naval academy at Edajima on board July 14 and the graduates of the Engineering and paymaster's school will board the *Iwate* at Miyajima on July 15. The *Iwate* will then sail for Chinkai, stopping at Jinsen, Dairen, Ryojun, and Seito, then return to the Japan Sea, joining the second fleet on its cruise to Hakodate, and will return to Yokosuka the middle of September. She will also participate in the minor naval maneuvers in October.

The *Iwate* will leave Yokosuka in November for foreign cruise to Australia, New Zealand, and South Sea waters and will return to Yokosuka in April, 1926. The cruise will cover approximately 6,000 miles.

To strengthen foreign service squadron

The Japanese fleet stationed in Chinese waters is to be strengthened by the addition of one cruiser and eight destroyers and to be placed under the command of a vice admiral instead of a rear admiral, as at present. The Government has decided to do this owing to the frequency of disturbances in China. The present fleet consist of 10 gunboats, and it is claimed this force is insufficient.

The light cruiser *Kuma*, now at Kure Naval Station, is to be transferred to Sasebo and become the flagship of the China fleet.

Cruiser Jintsu to be delivered to navy

The cruiser *Jintsu*, at present under equipment at Kawasaki Dockyard, Kobe, will be delivered to the navy early in July.

Cruiser Yura to undergo repairs

The cruiser *Yura* of the fifth division is having trouble with her engines which will prevent her from participating in maneuvers with the other ships of her division. The *Yura* will be placed in third reserve and put in dock at Sasebo for thorough overhauling.

Destroyer Sawakaze runs aground

The destroyer *Sawakaze* of the second destroyer division, during a heavy fog collided with a submerged rock near Hitocap Bay, Kamchatka, on June 3. Her hull was badly damaged and hurried to Ominato, where temporary repairs were effected. On June 11 she left for Yokosuka, where she will undergo necessary repairs.

The officers of the *Sawakaze* have been ordered to appear before a naval court-martial.

Destroyers Kagero and Akebono sold

The destroyers *Kagero* and *Akebono* were sold at Kure by competitive bids on June 17, the sum of ¥17,109 being offered for both.

Fourth reserve to be abolished

Due to financial retrenchment the navy some time ago created the special reserve ship system, and ships placed in the fourth reserve had only 10 per cent to 20 per cent of their regular complements on board.

Recently this system has been changed, and those ships in fourth reserve were transferred to special reserve status, supplies on board being removed to the navy yard. Only a few men acting as ship keepers will be left on board.

The ships belonging to the special reserve class at present are :

At Kure—*Yodo*, *Akashi*, *Chitose*.

At Yokosuka—*Chikuma*, *Chihaya*.

At Sasebo—*Mogami*.

During the current year it is expected to add additional ships to the special reserve class.

Bombing practice

Aerial bombing practice will be held in Tokyo-bay on June 23 and 24 by bombing company of the Kasumigaura Aviation Corps.

An imitation F-5 hydroplane towed by a cable 500 meters long will be used as a target. Three machines flying in formation at a height of between 1,400 and 2,500 meters will drop bombs of 4-centimeter size simultaneously. A total of 24 bombs will be used.

This will be the first attempt in the Japanese Navy at bombing while flying in formation.

Naval promotion

The Japanese navy department has decided to follow out a new plan for the promotion of officers. At present, with the exception of ordnance, construction engineer, and the construction corps, only about one-third of the officers are promoted to as high as the rank of captain, the others being placed on the reserve list before reaching the rank of captain. The navy department fears that in case this

state of affairs is allowed to continue it will result in a gradual falling off of the number of applicants who desire to become naval officers, thus lowering the standard. The navy department has therefore decided to allow most of the officers to reach the grade of captain, permitting the special officers to fill the vacancies in the lower ranks.

Heretofore the special officers were promoted only to as high as the rank of lieutenant, but the change will allow of special officers to be promoted as high as the rank of commander, also the number of special officers will be considerably increased, thus permitting about half of the regular officers below the rank of lieutenant to be replaced by special officers. This will result in reducing the number of cadets to the naval academy each year.

Graduates of naval schools

The number to be graduated from the naval schools this summer are as follows: Line, 65; engineering, 21; paymaster, 12.

The number of midshipmen assigned on board a training ship for a practice cruise is usually about 80. This year appropriation has been made for only one ship, the *Iwate*, and as there are a total of 98 midshipmen the ship will be crowded.

Next year the number of graduates from the different naval schools will be as follows: Line, 70; engineering, 27; paymaster, 14.

It will be impossible to accommodate the total of 111 in one ship next year, and the navy department will accordingly make provisions in the budget for the fiscal year 1926-27 for two ships.

Navy planning to establish gendarmerie system

It has been decided to establish the gendarmerie system in the navy, assigning men from the various corps for this new duty.

The plan will be submitted for the approval of the cabinet at an early date.

LATVIA

POLITICAL NOTES

May, 1925

(From the Riga press)

In Latvia, as well as in all other European countries, there is one central problem underlying all other political problems, namely, that of security. It is especially acute at the present moment in the

Baltic States, as must naturally be the case in all recently formed nations. Being keenly conscious of their inferiority as compared to their powerful neighbors, they are anxious to find some moral force which will insure their national independence. That is why all influences tending to consolidate the idea of peace are enthusiastically welcomed by the Latvian people, as is evidenced by the profound impression produced by Prof. Mendelssohn Bartholdy's addresses to the League of Nations in Riga and elsewhere.

The writer had the occasion of talking with the Minister for Foreign Affairs, Siegfried Meirovitz, concerning the attitude of Latvia's foreign policy in regard to the problem of security. The minister expressed himself as follows:

The keen interest which Latvia takes in all questions concerning the security of Europe is the natural consequence of its geographical position between two great powers which do not as yet belong to the League of Nations. The Latvian Government takes its stand on the basis of the Geneva protocol, because it believes this to have been the most radical attempt to insure European peace. Separate agreements should, therefore, be concluded only on the basis of the protocol of Geneva. We are perfectly conscious of the difficulties which stand in the way of the realization of the Geneva propositions, and we would therefore welcome any other and perhaps better solution of this problem with the same enthusiasm. We would be glad to take part in any agreement which might be proposed as a basis for national agreements.

The fact that Latvia is going to renew her negotiations with Russia concerning a pact of security marks an important progress in the question of security in the East. We can not as yet be certain whether it will be possible to remove completely the factors which caused the negotiations to be broken off last year (the arbitration clause), but we have been advised that the feeling in Moscow is more favorable to such an agreement than it was last year.

We should welcome Germany's entrance into the League of Nations as a most highly valuable accession to the security principle. And if Germany, as a member of the League of Nations, should uphold the idea of Russia's admission to the League we would gladly give her our support, and we have no doubt that the other Baltic states would do the same. We believe that the solution of the security problem can best be attained on the basis of international parliamentarianism which is the essential principle of the League of Nations.

The military conference in Riga to which certain official "demonstrations" gave a mysterious tinge of secret diplomacy, also enters within the range of the security problem. The delegates from Warsaw and Bucharest who paraded about the streets in full military uniform were sufficient proof that there was not much secrecy about the business. The military attachés of the Baltic states, including Finland, took part in the conference. The official communique stated that the conference had dealt with technical questions and with a coordination of opinions in view of the conference on the question of traffic of arms and war material to be held in Geneva on May 4. A report of the Latvian Ministry for Foreign Affairs issued 16 days later

added a few particulars, namely, that the question of security had been discussed in connection with the Geneva protocol. One can not help thinking that the connection with the practically unfeasible protocol must have been rather a loose one. The report goes on to say that the discussions were quite free from any friendly tendency as regards Russia or Germany and that there could be no question of any military agreement directed against either of these countries.

In order to form a correct idea of the importance of this military conference extending from the White to the Black Seas, it should be described as a conference in which the military representatives of a few eastern European countries discussed the security of Eastern Europe. This was quite a vain attempt, made with inadequate means, because the security problem is one of joint European importance, a Gordian knot in which all European nations are entangled since the peace of Versailles. If some new-born second Alexander attempted to cut it with the sword, he would also cut through the life arteries of Europe. Happily we have no reason to fear that the military conference of Riga has done anything to render this danger more imminent.

NORWAY

ORDNANCE NOTE

July, 1925

New mountain howitzer

A new 7.5 mountain howitzer is about to be adopted in Norway. The following details are available:

The gun in firing position weighs 518 kilograms and fires a 6.5 kilogram projectile with a velocity of 330 m/sec. up to 7,200 millimeters. In addition to the full charge, three smaller charges are contemplated, imparting to the projectile a velocity of 245, 205, and 165 meters, respectively. Height of gun ready for firing is 0.775 meters; spread of wheels, 1.05 meters; elevation from plus 5 to 47°; deflection equals 5°. The gun can be drawn, limbered, by two horses, but may be transported unlimbered on pack mules. The gun has also been tested as an auxiliary gun for infantry.

RUSSIA

MISCELLANEOUS NOTES

July, 1925

Activities of Russian Navy

The Russian Navy is continuing its efforts to train its personnel, and the sailors detailed to ice breakers during the winter for training in sea service have now been returned to their original ships.

On May 6 a group of vessels, consisting of 2 lineships, 1 cruiser, 8 destroyers, 4 submarines, 4 mine ships, and several auxiliary vessels, engaged in target practice and other naval maneuvers in the Gulf of Finland, which will be developed into more extensive maneuvers in June extending as far as Gotland.

New light machine gun

A light machine gun, named after its inventor, Fedoroff, has recently been adopted in the Russian Army; caliber, 6.5 millimeters, and weighing only 5 kilograms. It has a movable barrel, and a breech consisting of two bolts, one on either side. The magazines hold 25 rounds. The ammunition is of Japanese manufacture and is said to be more suitable for this gun than the Russian make. Weight of the complete cartridge, 21 grams; of the bullet 9 grams. Initial velocity 680 meters; rapidity of fire, 25 rounds per minute; individual fire, up to 75-100 rounds quick fire.

Seeing that there is no provision for cooling, it will hardly be possible to exceed the above rate.

Moscow machinations

(From the German press)

The soft winds of May have wafted Leo Danilovitch Trotzky back into the arms of "Mother Moscow," after a short intermezzo, during which the cold January blasts of party intrigue had driven him to the shores of the Black Sea. After Lenin's death the party leaders did not want any prominent actor to play the part of prima donna; for them the death of the high priest of communism had been the signal for the stamping out of the last remaining flickers of liberty of thought or action in the "unholy" Russian Republic.

Trotzky, however, was far too energetic to yield to the rule of bureaucratic party formulas and political despotism. He saw that

the snail's pace of economic development and the crab's pace of bolshevistic policy in all its branches must inevitably paralyze the soaring flight of his world schemes. Ill health and deceptions made him nervous, and he was never tired of stirring up the dead waters of party politics until at last he published a book entitled "The Year 1917," in which he most energetically attacked the all-powerful triumverate of Stalin, Sinovieff, and Kamenieff. The latter thereupon induced the central executive committee of the party to pass judgment on Trotzky's conduct. The committee decided that Trotzky's presence not only menaced the peace and discipline in the ranks of the party but that, in his position of people's commissar for war and navy, he was a danger for the red army as well. His polemic criticism would lead foreign imperialistic states to form erroneous conclusions regarding the soviet union and would give support to the "antiproletarian" elements among the soviet officials, who secretly wished to shake the dictatorship of the party. Trotzky wished the communistic party to adopt the idea of a modernized Boleshevism, stripped of Leninism. These ideas were inadmissible, because an iron discipline and a rigid unity on the basis of Leninism were the fundamental conditions for the success of the bolshevistic party; and the bolshevistic party was the cornerstone of the dictatorship of the Russian proletariat. So Trotzky, the former champion of revolution and Boleshevism, the associate of Lenin in the overthrow of the Kerensky Government, the prop of soviet power, and the maker of the red army, had to go into exile one year after Lenin's death.

The same fate awaited Radek, who, with all his insignificance, attempted a little side fling of his own out of the tedious high road of party politics at the expense of Ruth Fischer and the German Communist Party. Immediately the all-powerful triumverate caught him a smashing stroke on the jaw, which sent him flying out of the Third International and landed him on his editor's stool where he sat sulking for many weeks, weeping tears of injured innocence in the columns of the *Isvestja*.

There is a telegram from Moscow announcing that Trotzky's health is restored and that he is returning to take up his former duties. The message would have been more correctly worded if they had said that Trotzky's health was perfect, but that the Tchekists—the members of the political bureau and leaders of the central executive committee—had been ill and had now come back to a certain degree of health and reason.

Rykoff, president of the council of the people's commissars, which is the permanent organ of the soviet government, had had an interview with Trotzky while the soviet congress was parading at Tiflis. He had then induced his associates, Stalin, Sinovieff, and Kamenieff,

to allow the prodigal son to return home. This was a clever move, which was not made one moment too soon. For the past seven years the soviet leaders have been trying experiments of vivisection on the body of the Russian people, and in these circumstances it is imprudent to send one's best agents into exile and to offend one's most intelligent supporters.

The soviet pursues two objects which are just as incompatible as fire and water, because the attainment of the one necessarily excludes the attainment of the other. On the one hand, they hold fast to the dogmas of theoretical communism and the fantastic schemes of world revolution; on the other hand, they make convulsive efforts to raise the economic level of their communistic state by entering into contact with the economic life of other States, which is based on absolutely contrary principles. This contradiction is embodied in two rival parties with conflicting programs of practical policy and perfect identity of theoretical principles. The one proclaims war to the death against capitalism and imperialism; the other tries to contract agreements with foreign imperialism and bourgeois States and to obtain credits from "accursed" capitalism.

If the soviet leaders abandon their communistic dogmas and the ultimate object of a world revolution, if they give up active propaganda, they run the risk of losing their most stanch supporters—the real fanatics of communism. If on the other hand they adhere to the doctrine of communism, it is quite certain that Russia will not gain admittance into the economic commonwealth of the world, her economic reconstruction will be impossible, and not one of the needs of the population—and these needs are very urgent—will be satisfied.

All the attempts made by the soviet government in this direction abroad are defeated by the communistic party at home. The web which Tchitcherin and his associates tried to spin is torn into shreds by a thundering speech of Sinovieff's. This can not go on *ad infinitum*. The leaders of the world's economics stand face to face with the leaders of the world's revolution and the time is not far off when the economic life of the world will demand free access to the territories of the Soviet Republic, with their untold possibilities of production and consumption. The nations of the globe are now engaged in a life and death struggle for their economic existence, and at the same time they are excluded from the territories of the soviet; but it need hardly be pointed out that the problems of world policy are not to be solved by the bombastic utterances of a Sinovieff.

In spite of outward pressure and distressing disorders at home Germany has succeeded in so far regulating her internal conditions that she has not much reason to fear the danger of a Bolshevik revolution. And for this reason she can be indifferent to the situation in

Soviet Russia as far as it regards the development of communistic principles. The only point of interest for Germany is the resurrection of the Russian market, and, therefore, she will welcome any combination of events which is likely to further such conditions of security and order as will enable the Russian people to develop their boundless resources of production.

TURKEY

NEW NAVAL CONSTRUCTION

July 1, 1925

Submarines

A contract has recently been awarded by the minister of marine, by authority of the Turkish National Assembly at Angora, for two submarines to be built by the Fijenoord Co., of Rotterdam, Holland. Although this firm is nominally Dutch, they have taken over the interests of several large German shipbuilding firms and have at their disposal all the German Navy plans for submarines, particularly 1918 designs.

The contract calls for two 450-ton submarines, German type, 1917 design, surface speed 14½ to 15 knots, submerged speed 9 knots, 2-MAN 4-cycle type engine, 550 horsepower, one 75-millimeter Boforis fixed gun, and one 1-inch machine gun, six 18-inch torpedo tubes, five torpedoes to be furnished by the Fijenoord Co. and five to be constructed by the Turkish Navy. The terms of the contract call for the delivery of the two boats to be made 20 months after the award of the contract, each boat to cost 1,352,000 ltqs. (approximately \$725,000). The contractors want a bank guaranty before undertaking this work, while the Government wishes the payment to be spread over a period of five years. It is understood that the Ottoman Bank at Constantinople has refused to give a guaranty, and that the Fijenoord Co. expects to get a guaranty from a group of banks in Germany.

It is interesting to note that at the same time the Electric Boat Co., an American concern, made a more attractive bid for submarines, but was refused. The Electric Boat Co.'s offer was for the construction of two 500-ton submarines of modern type to be built in Italy. Each boat was to cost \$625,000. The armament was to have been the same, except that the 75-millimeter Boforis fixed gun was to have been a 3-inch 50-caliber fixed gun.

Floating dry dock

A contract has been awarded the Flender Dry Dock Co., of Lubeck, Germany, for a 26,000-ton floating dry dock to cost 216,000 English pounds. The terms of delivery are: (a) Delivery at Constantinople within seven months from the time of awarding the contract, of the floating dock in a knocked-down condition, the dock to be erected here; or (b) to be delivered completed at Constantinople within nine months. The terms of payment are as follows: One-half to be paid this fiscal year, which expires February 28, 1926, and the remainder of the amount to be paid the next fiscal year.

It is understood that the dry dock will be established at the Turkish naval base at Ismid and that a certain number of German mechanics will be brought to Turkey for instruction purposes.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME VIII—NUMBER 3

SEPTEMBER, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

VOL. VIII, NO. 3—SEPTEMBER, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

CONTENTS

| | |
|--|------|
| ARGENTINA : | Page |
| Naval note----- | 1 |
| DANZIG : | |
| Political note----- | 2 |
| FRANCE : | |
| Miscellaneous notes----- | 5 |
| GERMANY : | |
| Notes----- | 11 |
| GREAT BRITAIN : | |
| Aviation notes----- | 13 |
| Miscellaneous notes----- | 19 |
| ITALY : | |
| Miscellaneous notes----- | 22 |
| JAPAN : | |
| Replacement programs----- | 25 |
| Miscellaneous notes----- | 28 |
| Aeronautical supremacy—Japanese preparedness----- | 34 |
| Aviation notes----- | 41 |
| NETHERLANDS : | |
| Japanese and British activities in Dutch Borneo----- | 44 |
| RUSSIA : | |
| Naval notes----- | 47 |
| SWEDEN : | |
| Naval notes----- | 51 |
| URUGUAY : | |
| Political note----- | 52 |

DANZIG

POLITICAL NOTE

July, 1925

(From the German press)

A few days ago the International Court of Justice of the League of Nations assembled in The Hague in order to decide the post conflict between Poland and Danzig. Poland claims the right of organizing a special postal service of its own within the territory of the free town of Danzig, and it has already opened Polish post offices in the town and fixed Polish letter boxes in many of the streets. This is a continuation of the line of conduct which Poland has been following for a long time and which has been evidenced, for instance, by the organization of a Polish railway control and of a Polish munition deposit in the harbor—Poland's whole policy of inflicting vexations and petty affronts is meant to establish the following propositions:

In spite of its external status and recognized constitution, the free town of Danzig is not in reality an independent state but only a territorial unit pertaining to the Polish Republic, or, at least, as a last concession.

Danzig is united to Poland into one state in such a manner that the vassal state of Danzig is subject to the sovereignty of the superior state of Poland. The joint state of Poland and Danzig is therefore one state, both as regards international and civil law. The supreme state authority—that is, sovereignty—belongs to Poland, which can at any moment withdraw any branch of administration from the control of Danzig and take it under her own control. Danzig is not a sovereign, but only a half sovereign state, like the English vassal states of Zanzibar and certain Indian states and like the French vassal states of Tunis and Morocco.

In order, therefore, to come to a settlement of the post contest, which is now going to be discussed in The Hague, it will be necessary to investigate the essential questions of the international legal relations of Danzig and Poland. The tribunal will have to decide the following questions: (1) Is the free town of Danzig a state, and (2) is it a sovereign state?

It is not quite easy to answer these questions, because since the peace of Versailles a new factor has become a potent agent in all questions of international right, namely, the League of Nations.

Is Danzig a state? It undoubtedly possesses the three elements pertaining to a state, namely, state territory, state people, and state power. The state territory is determined by article 100 of the

treaty of Versailles. The state people consists of the German population of the said territory, formerly subjects of the German Empire. The state power is defined by article 103, which says that the constitution is to be worked out by the legally appointed representatives of the free town of Danzig. According to the constitution thus acknowledged by the League of Nations the supreme power of the Danzig state resides in the people of Danzig; the people are represented by the Volkstag, which is the highest legislative power. The Senate is the head of the state and highest administrative authority. The supreme authority in the Danzig state is an autonomous power based upon its own right. According to all recognized principles of international right the free state of Danzig is therefore undoubtedly a state, this being quite clearly expressed in the text of the articles 104–105 of the treaty of Versailles, which explicitly speaks of the “subjects of the free state of Danzig.”

Is Danzig a sovereign state? Poland has two arguments in refutation of this proposition. According to article 104 of the treaty of Versailles the control of the foreign affairs of Danzig and the protection of Danzig subjects in foreign lands belongs to Poland. This implies that if one admits that Danzig is a state it is not in any case a sovereign state but only a half sovereign one; that is, a vassal state under the sovereignty of Poland, together with which it forms one joint state. Article 104 of the treaty of Versailles further contains the following regulations by which the character of sovereignty is excluded: Danzig has been included in the Polish customs district and a free zone has been established in the harbor of Danzig.

Poland possesses the free right of using all the waterways, docks, harbors, quays, etc., of the territory of Danzig without any limitations. Poland has the right of supervision and control over the Vistula, over the entire net of Danzig railroads, and over the postal, telegraphic, and telephonic communications between Poland and the harbor of Danzig. Poland has the right of construction of waterways, docks, harbors, quays, and railways, as well as that of purchasing or renting lands necessary for this purpose.

Those last four clauses of Polish rights express nothing more than certain so-called state “servituten,” to which Danzig is subjected and which, as stipulated by the treaty of Versailles, must be based upon state agreements between Poland and Danzig. There have been many cases of similar state obligations in the past, but they never entailed any loss of sovereignty of the state in question. This may be evidenced by a few examples, such as the extension of the Swiss customs frontier over French territory near Geneva, the existence of Luxemburg within the German customs frontier, the German state railways in Luxemburg, the numerous stations and

railroads belonging to one nation and situated within the territory of other nations, the Baden railway near Basel, the British coal stations in foreign countries, etc., the numerous free harbors. In regard to the Polish control of Danzig's foreign affairs and the Polish protection of Danzig subjects abroad, the treaty of Versailles (art. 104) expressly states that these questions are to be settled by an international treaty bond between Poland and Danzig. There is no question of a constitutional enactment prescribed by joint state authority, as would have been the case if Poland's claims to sovereignty had been well founded. A treaty bond which subjects the sovereignty of a state within a given province to certain limitations does not annul the sovereignty of that state, even when, as in this case, the treaty is dictated by the allied powers. Because the power to dictate did not pertain to any authority established over Danzig on the basis of general right, the agreement made by Danzig and Poland in Paris binds the two contractors together, but does not subjugate the one to the other.

Not even the protectorate of one country over another has any effect upon the sovereignty of the subordinate state, because a protectorate means a certain relationship founded upon a lawful agreement by which one state undertakes to represent and to afford protection in the sense of international law to the other state. The protected state is not subject to the state authority of the protector state nor is its sovereignty in any way impaired. This is exemplified in the case of the Republic of San Marino, which is under the protection of Italy, and the principality of Monaco, which is under the protection of France. Danzig, however, is not a Polish protectorate. According to article 102 of the treaty of Versailles it stands, not under the protection of Poland, but under that of the League of Nations; that is, of the totality of the nations included in that league. Poland is only invested with the diplomatic representation of Danzig, as is explicitly stated in articles 104-106. But even assuming the existence of a Polish protectorate over Danzig, this fact would not, as we have just seen, annul the sovereignty of the Danzig state. We have also seen that the other proposition, namely, that Danzig is a vassal state of Poland, the two together forming one joint state under Polish supremacy, lacks foundation. The only remaining alternative is that Danzig must be recognized as a perfectly sovereign state in the international commonwealth on equal terms with Poland. If the allied and associated powers had wished to subject Danzig to Poland in the sense either of international or of civil law, they would not have placed that town under the protection of the League of Nations, nor would they have appointed a High Commissioner of the league to act as

arbiter between the free state of Danzig and Poland. This enactment is unmistakably designed to maintain the sovereignty of the Danzig state and to assert its equality with Poland. In a decree of November 7, 1924, the High Commissioner of the league declared that "Danzig is a state in the sense of international law," which is equivalent to saying "Danzig is a sovereign state" because only sovereign states are states in the sense of international law. Poland entered a protest against this decree before the council of the League of Nations. The latter, however, in the course of their last March session in Rome, were not inclined to take any decisive attitude in the question. Their answer was ambiguous; it was declared by Poland to be a recognition of Polish claims, whereas Danzig understood the phrase "the position of the free state of Danzig in regard to international law is clearly defined by the treaty of Versailles" to mean a confirmation of its rights. Probably it will be many weeks before the Court of Justice at The Hague pronounces its sentence, but there can be no doubt as to the result of its decision. There is also no doubt that Poland will continue her attempts to bring the sovereign state of Danzig into a condition of political dependence—on a basis of fusion or suzerainty or protectorate—unless the League of Nations decides to fulfill its obligations as the protector of the independence of a free state.

FRANCE

MISCELLANEOUS NOTES

August, 1925

Submarines

The mine-laying submarine boat *Pierre-Chailley*, of the French Navy, has cost slightly over 7,000,000 francs. Her length is 70 meters (229 feet 8 inches), her surface displacement is 900 tons, and her displacement immersed 1,200 tons. For laying when immersed the boat carries 64 mines, weighing 508 kg. (10 cwt.) each, placed in 32 cells amidships between the two hulls, 16 on each side. The armament consists of two torpedo-launching tubes and one 10-cm. (3.937-inch) gun. The boat is propelled by two engines of 900 horsepower each. The surface speed is 14 knots, and the radius of action close upon 3,000 miles. The *Moniteur de la Flotte*, which gives these figures, refers also to the *Maurice-Caillet*, another French mine-laying submarine boat, which has recently completed in the Mediterranean an endurance test of 50 days' duration. Her surface speed is 16.2 knots, the speed immersed being 10.4 knots. The *Maurice-Caillet* has a displacement of 932 tons on the surface, a

radius of action of 3,150 miles at 11 knots, and when immersed the boat can cover 112 miles at 5 knots. The armament consists of six torpedo-launching tubes and one 75-mm. (2.953-inch) gun. The boat carries for laying when immersed 27 mines, arranged at the upper part, above the inner hull and ballast, disposed in three lines of 9 mines each. The mines are so placed that the axis of the anchoring weight is horizontal, the float being toward the bow of the submarines; the mines rest on six friction rollers on their frame, on two rails made of angle bars fixed to the hull. An endless chain passes under each line of mines and serves to move the mines aft for laying. In traveling aft on the guide rails the mines are ultimately inclined 60° to the horizontal previous to their release, the required motion being given by two electric motors which act by gearing on the three lines. The motors are designed to lay the mines of one line at the rate of one every 12 seconds, and at a speed of 5 knots for the boat; this corresponds to an interval of 30 meters (98 feet) between each two mines laid. The three sets of mines, or any two of them, can be laid simultaneously when the mines are suitably spaced apart, or any single line can be laid separately. The movement of the mines to the stern and the action of laying have no appreciable effect upon the trim of the boat.

The 600-ton submarines *Ariane* and *Sirène* were launched (*Ariane* at Le Havre, *Sirène* at Nantes) August 7, 1925.

The keel of the submarine *Redoutable* (1,560 tons) was laid down at the Cherbourg Arsenal on July 14, 1925.

The *Redoutable* and *Bengeur* (1,560 tons) were authorized in the 1924 program.

This class of submarine will have a surface speed of 18 knots; otherwise will follow main lines of *Requin* type.

Building program

The building program for 1925, as outlined in above reference, was approved by the Senate and Chamber of Deputies July 13.

This authorizes the Minister of Marine to lay down during 1925 the following units:

| | |
|------------------------------|---|
| Light cruisers..... | 1 |
| Destroyer leaders..... | 3 |
| Torpedo boats..... | 4 |
| Submarines, first class..... | 7 |
| Submarine mine layers..... | 2 |
| Surface mine layers..... | 1 |
| Aviation transports..... | 1 |

In view of the fact that the keels of 1,500-ton torpedo boats (L'Alcyon class) have not as yet been laid down, it is very probable that with the exception of the light cruiser the other units of the 1925 program will not be in the hands of the builders prior to the spring of 1926.

Device for varying compression of aircraft engines while in flight

A device for varying the compression of aircraft engines while in flight, invented by M. Louis Damblanc, was seen at the works of the Salmson Co. at St. Cloud. M. Damblanc described his device and showed drawings incorporating the device in the "Salmson" and "Jupiter" engines. It was learned, however, that so far it had only been incorporated in the Salmson. He stated that he had studied the question of incorporating the device in a Jaguar engine and considered that it could be done without difficulty. He also stated that the device was patented in England and that an application had been filed for patents in America, but claimed that he had no copies available.

The various parts of the device were seen together with the parts of the engine to which it was to be fitted, but, unfortunately, there was no complete assembly. The general idea of the invention could be seen and consists of the varying of the position of an eccentric sleeve which is fitted on the crank, the variation of this sleeve being accomplished by mechanism operating from the outside of the crank case through the center of the shaft. It is therefore obvious that the device can only be used on an engine with a built-up crank shaft and where there are not more than two cranks. On one end of the sleeve is a spur gear which meshes with a spur gear on the end of a shaft inside of and concentric with the crank shaft. It will be seen that in order to keep the position of the eccentric sleeve constant with regard to the position of the crank during its revolution that it is necessary for the sleeve to make one complete rotation for each revolution of the crank shaft. This is accomplished by means of a set of epicyclic gearing mounted in a housing on the outside of the crank case, which gearing is driven by a small pinion from the external part of the crank shaft. A change in compression is accomplished by changing the position of the eccentric with relation to the crank, and this is done by rotating a normally fixed gear in the epicycle housing, which rotation is accomplished by means of a small hand crank which is operated from the pilot's seat.

In order to rebalance the crank shaft, on account of the addition of the eccentric sleeve, it is necessary to have an additional counterweight on the counterbalanced portion of the crank web. It is

also necessary that the position of this additional counterweight be variable in order to compensate for the variation in the position of rotation of the eccentric. A counterbalance weight of special shape is therefore mounted on a short shaft in the web parallel to the crank shaft, and on this short shaft there is also mounted a pinion. Meshing with this pinion is a spur gear carried on the end of a secondary shaft extending through the center of the shaft that carries the gear for operation of the sleeve itself. The other end of this secondary shaft has a gear which meshes with a normally fixed gear in the epicycle housing so that the rotation of this fixed gear, in order to change the position of the eccentric sleeve, rotates not only the eccentric sleeve but also the special counterbalance weight. It appeared from an examination of the device that difficulty might be encountered in accomplishing exact balancing. The inventor stated that difficulties had been encountered, but had been eliminated.

It will be seen from the above description that the device is rather complicated, but its parts are not heavy and the weight given by the inventor as approximately 16 to 22 pounds appeared reasonably accurate. The inventor stated that the Salmson engine, equipped with his device, had passed a satisfactory 50-hour test. This statement was partially confirmed by French Air Service officers. No details in regard to the functioning of the device were obtained from the personnel of the Salmson Co., and it was gathered that the device was simply being fitted on a limited number of their engines upon instructions from the Service Technique.

The inventor claimed that compression could be varied from 5 up to 9, but there were no means available of checking this statement. It did not appear from the eccentric sleeve seen that a variation of the amount claimed could be accomplished as the amount of eccentricity was not very large.

Rumors of mutiny in French fleet

(Source: Reliable)

For several weeks the French press has printed mild articles about "discontentment" existing on board ships of the French Fleet, notably the *Jean Bart* and *Courbet*, during recent maneuvers in the Mediterranean. In view of the delicate political situation at present in France a general "hush" was apparently sent out until a thorough investigation of the incident was made by the Minister of Marine. The French Government naturally can not permit any unfounded rumors to spread which would in any way create the

impression that the agents of Moscow have succeeded in extending their doctrines among the personnel of the navy—especially as the extreme right of the chamber, under the leadership of former President Millerand, is accusing the Soviet Embassy in Paris of being an agency for Bolshevik propaganda.

Information now at hand shows that as a result of the “discontent” referred to in the press a court-martial convened at Toulon August 24 to try four enlisted men of the engineer’s force on the charge of “conspiring against the authority of the captain.” Out of 15 arrests the charge of “conspiracy” could only be proved against four. The men were found guilty and sentenced as follows:

| | Years in prison |
|--|--------------------|
| Henri Dumoulin (leader), (P. O. engineer’s force; above average in intelligence) ----- | 4 |
| Victor Quillery (elec. mate)----- | 3 |
| Julian Chabaud (mach. mate)----- | 1 |
| Felix Bicorné (fireman)----- | 1 |

From information gleaned from the press no connection between this event and the communist organization was brought out at the trial. However, the following excerpt taken from the closing argument for the prosecution tends to show that official opinion leans toward the belief that the communists were at the bottom of the plot:

* * * the question of poor nourishment was only a pretext for the uprising; history teaches us that this pretext has often been used as a cause for rebellion. * * *

Several questions were put to naval officials in an endeavor to get confirmation of the reasonable assumption that communists were at the bottom of the trouble, but of no avail; the whole subject was treated with an indifference intended to convey the idea that it was nothing but an ordinary case of a few men refusing duty.

It is hard to believe that one of the reasons given, viz, “poor nourishment,” was the real cause of the trouble, as the ration allowance of the men was recently increased and may well be considered sufficient from a French military standpoint. There are many post-war reasons which possibly cause discontent among the enlisted personnel of the French Navy, the following of which are a few:

1. Three-year enlistments in navy when the period in the army is only 18 months.
2. Transfer of major fleet from Brest to Toulon. As the majority of men are recruited from the northwestern coast towns they find themselves seldom at home with their families. This is an important factor with French Navy men, who are not as adventurous as the American and who prefer to remain around their home sector.
3. Increase of pay not commensurate with increase in cost of living.
4. Slow promotion due to financial pressure on navy budget.

NOTE.—In connection with promotion it might be remarked that the French Navy Department in its late arrangement on the question of promotion seemed to cater to the recruits, giving them undue advantage over the “old-timer.” Several letters from “old-timers” in the various service papers complain that the navy is offering everything and anything to obtain recruits but that nothing is offered to the men whom they have already “tied down with a contract.”

The following briefs give a general idea of the trouble which took place on board the *Courbet*:

(a) The *Courbet* left Toulon in June for Naples; crew appeared contented and looked forward to a nice trip. While en route the food was not prepared up to standard and gave cause for complaint; the quality was also below standard.

(b) The engineer's force when called upon to get under “forced draft” made the first complaint. The adjutant received the complaint and immediately threw overboard a large quantity of musty bread and several hinds of tainted beef. This calmed the men, and everything seemed settled for the best. For some unknown reason the adjutant committed suicide and was relieved by a less experienced man. It has been inferred that if the food had been properly supervised after the first complaint had been made no further discontent would have manifested itself.

(c) Next arose the complaint of insufficient shore liberty. While at Naples a liberty list was submitted to the captain for approval. The captain scratched a few names from the liberty list, which caused a certain amount of grumbling; however, as soon as the adjutant in turn scratched a few more names from the list the crew broke into a state of wild excitement. A delegation from the crew went to the adjutant and asked him why he scratched several names from the liberty list, to which he replied: “Only men of good conduct will go on shore.” “Well, then,” replied the delegation, “the men of good conduct alone can turn to and do the work.”

(d) After this scene the delegation retired to the after dynamo room. There were present in all at this meeting about 50 members of the engineer's force. One member recited the interview with the adjutant; another recited how only an imposing protest can help to change the poor messing arrangements. He cited, to support his declaration, the action of the crew of the *Jean Bart*, on board which vessel similar conditions existed. While this meeting was in session the captain of the ship, Captain Mottez, had all firearms taken from the racks and placed additional sentinels outside his quarters.

(e) During the meeting the men decided, as a protest against the poor food being served on board, not to turn to when the watch was called to get up steam for getting under way, but instead to meet on the forecastle. As decided, all members of the delegation met on the forecastle when the orders were issued to get up steam. Commander Luneau, engineer officer, came up to the men and pleaded with them to use common sense and to return to their stations. Dunoulin and Quillery were the spokesmen and presented their grievances to the commander. While this procedure was taking place an armed guard with fixed bayonets was ordered to surround the delegates assembled on the forecastle. As soon as Commander Luneau assured the men that he would take the matter in hand and bring their grievances to the attention of the captain they turned to and the ship got under way on time.

(f) One member of the delegation made the complaint that men of the fire-room gang were not allowed to go up on deck to see the sights.

The following points of interest as bearing on the morale of the personnel were brought out at the trial:

Statements made by Dumoulin to members of the mess:

1. All hands lay below to after dynamo room to a reunion of protest against messing conditions.
2. We will not turn to without having made out protest.
3. A delay of 24 hours will be given the captain to better conditions.
4. Now that we are all in accord everything should move nicely.

Statements made by Quillery:

The French authorities seized a letter written by Quillery to his wife in which he used violent language against lawful authority. Quillery made some very detrimental statements in the letter to his wife regarding activities in Morocco.

The following statement is quoted as being contained in the letter from Quillery to his wife: "At noon the revolt breaks out! We are going to imitate the example of the *Jean Bart*."

Statements made by Quillery to his messmates:

1. We have lost the first round; look out, we win the second.
2. I am happy that the crew has at last been aroused. It is now our turn to take the lead.

Memo: This is probably the affair referred to by Vice Admiral Dumesnil, commander in chief, in a speech recently made at Brest. He mentioned the endeavors of certain malcontents (presumably communists) to spread their doctrines among the enlisted personnel, but stated they had succeeded in impressing a few men of low mental ability only.

This article is forwarded as indicative of the probable state of morale and discipline at present existing in French naval forces.

GERMANY

NOTES

August 1, 1925

Movements of naval forces

The *Braunschweig* with the commander in chief, and the *Hessen* visited the ports of Stavanger and Balholmen, Norway. The *Hannover* and *Elsass* visited Oslo and Ulvik; the *Nymphe* and *Hamburg* visited Molde and Merok; *Amazon*e visited Rotterdam and the Eidanger Fjord.

The I mine sweeping half flotilla visited Gotenburg; the II torpedo boat half flotilla visited Kolberg and Wisby; the III and IV torpedo boat half flotillas visited Bergen and Ulvik-Odde.

The I torpedo boat half flotilla visited the harbor of Pillau, the cradle of the Brandenburg fleet which is celebrating the two hundredth anniversary of the founding of the city.

The coast artillery divisions of the Baltic district finished their spring artillery training the latter half of May with target practice from the coast fortifications. The I and V divisions were in Swinemünde and Pillau, the III on Sylt. These divisions will receive infantry training at their respective stations during the month of June.

At the end of May the coast artillery divisions of the North Sea district were transferred for four weeks to drill grounds, the II division going to Grafenwöhr, the IV to Münsingen and the VI to Senne.

The battle inspection of the ships and torpedo boats took place the end of May.

Scientific research ship "Meteor"

En route from St. Vincent to Buenos Aires, the *Meteor* which is engaged in a two-year voyage of scientific research in the southern Atlantic, made aerological and biological observations. In the trade wind belt, kites were sent up which attained altitudes up to 3,500 meters. The position of the banks and shallows east of the Abrolhas Islands (lat. 18° S; long. 38° W.) was verified and reports will soon be issued regarding details.

The *Meteor* arrived in Buenos Aires on May 25 and left June 3 for Cape Town. All well on board. It is interesting to note that 1 hour and 52 minutes was required for weighing anchor on the high sea (5,485 meters); 6,200 meters of cable were used. The anchor was heavily coated with mud, showing that it had been firmly imbedded in the ground.

New rotorship building in Bremen

The following details regarding the new rotorship now under construction at the Weser Yards in Bremen are of interest:

| | |
|---------------|---------------|
| Length..... | 55 meters. |
| Beam..... | 13.20 meters. |
| Height..... | 5.80 meters. |
| Capacity..... | 3,000 tons. |

The hull has five water-tight diagonal bulkheads, cruiser stern, and Flettner rudder. The two main motors have a combined performance of 1,050 E. H. P. for a speed of 10 knots. They are simple-acting 4-cycle engines and each has 6 cylinders of 360 millimeters diameter and 520 millimeters combined stroke. Through insertion of the new mechanical-hydraulic Vulcan gear, it is possible to build the ship as a normal one-screw vessel and to reduce the 300

revolutions per minute of the motor to 80 of the screw. The rotor of approximately 28 meters height and 7 meters diameter is located amidships. This is much larger than the two rotors of the *Buckau*. The surface necessary for the rotor drive is 196 square meters in the new ship and only 87 square meters in the *Buckau*; the rotor surface in both cases is 616 square meters for the new vessel and 274 square meters for the *Buckau*. The weight of the new plant is 35 tons as compared with the 38 tons of the *Buckau*.

GREAT BRITAIN

AVIATION NOTES

August, 1925

The Works of Metal Propellers (Ltd.)

This company, located on Parley Lane, Croydon, was formerly called the Metal Air Screws (Ltd.) and had no manufacturing plant of its own, the actual manufacturing work being let out on contract. It has recently purchased property on the outskirts of Croydon, about 12 miles from London, and has erected a small but very well laid-out plant. The equipment of the plant has not yet been completed, but manufacture on a small scale is being carried on. About 60 men are employed at the present time and the plant appears to be laid out for working approximately 150 men. Doctor Leitner is in charge of the management of the plant and Doctor Watts is in charge of the design section.

The following is a general description of the process of manufacture of the propellers manufactured by this company:

The blades are built up from mild sheet steel. This sheet steel is received in the storeroom, tested physically and chemically, and then sand blasted in order to enable inspection of flaws. Sand-blasted sheets are then cut in the proper form for the laminations, and a set of laminations for each side of the blade are then fastened together, heated, and formed in a hydraulic press. These formed sides are then clamped together, with spaces between in such a way that a crack of approximately one-eighth of an inch is left between the two sides. The two sides are then spot-welded together, and this spot welding also welds the laminations to each other along the edge. The blade root is then put on and the inner ends of the laminations are so spread in the blade root that by welding a wedge-like method of securing is obtained. The completed rough blade is next heat treated. This treatment produces certain deformities, which are then hammered out by hand. The blade is then smoothed up and given a sprayed coating of anticorrosive paint on the inside and a coating of stove varnish on the outside. All completed blades are tested for aerodynamic and static balance. The rough steel hub forgings are obtained on contract and machined in the works.

It will be seen from the above description that a large part of the work of manufacture is hand labor, and it was noted in the plant layout that provision was made for 40 welders. The amount of hand labor required is undoubtedly responsible to a large extent for the high cost of the product, and Doctor Leitner stated that he hoped to be able to reduce its cost when more experience is gained. He further stated that the company is engaged at the present time in filling an order for the Air Ministry, which amounted to £80,000. Incidentally it may be added that on the occasion of a recent visit to the Fairey Aviation Co. it was noted that all the Fairey *Fawns* being built had Napier *Lion* engines with the type of hub developed by the Napier Co. to take the Metal Propellers (Ltd.) types of blades. Doctor Leitner stated that both the Napier Co. and the Bristol Co. manufacture a hub of their own designed to take his blades and stated that his plant was laid out on the assumption that he would manufacture only about one-third of the hubs required for his blade output. He further stated that he hoped for production of 50 hubs and 250 to 300 blades per week with his present plant when it has been fully equipped.

There has been a considerable amount of talk recently in regard to an automatic variable-pitch propeller being brought out by Metal Propellers (Ltd.). Questions on this subject disclosed the fact that an automatic variable device has been patented by Mr. Hele Shaw and that one sample of this device had been manufactured by Metal Propellers (Ltd.). Doctor Leitner stated that the sample had proved entirely satisfactory on preliminary tests. He further stated that its use involved a very slight modification in his blades and that this modification was confined to the blade root. It was gathered that among other things the blade root would be designed to take a roller or ball-thrust bearing. No details of the device could be obtained other than it operates hydraulically. It is known that Mr. Hele Shaw is the inventor of certain hydraulic devices now in use in British gun turrets.

Plant of Supermarine Aviation Works

This plant is located at Woolston, Southampton. The construction of a new set of office buildings and the process of construction of an addition to the erecting shed was noted. The plant is engaged at the present time in the manufacture of *Southampton* type of twin-engined seaplane for the Air Ministry and the *Sea Gull* type

for the Australian Air Service. They are in addition constructing a racing seaplane to compete in the Schneider cup race.

It is understood that 12 *Southamptons* have been ordered and 10 were observed in various degrees of completion. The *Southampton* is a twin-engine flying boat, equipped with two Napier "Lions" mounted as tractors. It has a span of 75 feet and weighs fully loaded 14,300 pounds. The hull is of the Supermarine type of construction which has been described previously. There is a gunner's cockpit in the bow, a pilot's cockpit just abaft the gunner's cockpit, and the observer's cockpit abaft the pilot's cockpit and also fitted with controls, and two staggered gunner's cockpits aft. The *Southampton* has been developed to replace the *F-5* and is said to be very satisfactory. Its top speed is 95 knots, and the manufacturers claim that it will not only fly level on one engine with full load but also has a certain amount of speed range under these conditions. An interesting feature of the *Southampton* is the method of getting it in and out of the water on slipways. Instead of using a handling truck, a pair of detachable wheels complete with bracing are employed. Leading from the axle of each wheel are three braces, two of each leading in a more or less horizontal manner into fittings in the side of the hull located just at the water line, and a third leading up vertically to a fitting on the front spar under a strut. This vertical fitting is equipped with a double screw which is operated by a handwheel. The wheels are attached while the seaplane is still afloat and are then forced downward by revolutions of this double screw. The manufacturers claim that this method of handling seaplanes has proved far more successful and less expensive than the ordinary truck. As the position of the wheels is well forward of the center of gravity, it is necessary to use a special two-wheel swiveling tail truck, which is placed under the tail and secured to the hull after the main wheels have been attached.

The *Southampton* carries 400 English gallons of gasoline located in two tanks carried on the upper wing, one over each engine. This amount of fuel is said to give a radius of action of 11 hours at cruising speed. Bomb racks are in permanent fittings under each wing. The tail is of the single type with three vertical fins and three rudders.

Six Supermarine *Sea Gulls*, equipped with Napier *Lion* engines, are being constructed to the order of the Australian Air Service. So far as could be ascertained, these *Sea Gulls* are of the same type as have been furnished to the Air Ministry and which have been described in previous reports.

The Hawker Engineering Co.

This company, located at Kingston-on-Thames, at the present time is employing about 800 men, principally engaged in building single-seater *Woodcocks*, rebuilding *Snipes* and *DH 9A's*, and executing an order for 30 new *DH 9A's*. It was interesting to discover that such an order had been placed, as the *DH 9A* is a 1917 design, but it appears that no satisfactory type has been developed to replace it. These new *DH 9A's* are to be equipped with Liberty engines, and the fact that there still remain a large number of these engines in storage no doubt had a considerable effect in connection with the decision to build 30 new airplanes of the old type. The actual number of *Woodcocks* being built was not ascertained, but seven *Woodcock* fuselages were observed on the assembly floor in various degrees of completion.

Referring to page 22, BULLETIN for April, 1925, the metal airplane which was a modification of the *Woodcock* was rushed to completion in time to take part in the Royal Air Force display on June 27. It is called the *Heron*. This airplane has been returned to the factory for final completion, installation of instruments, etc., and has not yet undergone its tests. It was stated that its weight came out about the same as it would have come out if the airplane had been built of wood and wire, the wings being slightly heavier and the fuselage slightly lighter than would have been the case had wood and wire construction been used.

Referring again to page 22, BULLETIN for April, 1925, the single-seater fighter with direct drive Condor engine has been completed and is awaiting the delivery of a Reid type of propeller from the Fairey Aviation Co. This airplane is called the *Hornbill*, and it was said by the managing director that the type was being developed with the idea of perhaps eventually creating what might be called a stunt squadron equipped with this type, which squadron would be rather widely advertised to increase the prestige of the air force. The *Hornbill* is very lightly loaded, carrying only two hours' fuel and one .30-caliber machine gun, and it was said that it was designed to make a speed equal or greater than the French bombing type while it was carrying out its maximum climb. It was further stated that the top speed was estimated to be in the neighborhood of 210 miles per hour, and that the speed at a steep climbing angle was estimated to be approximately 130 miles an hour. Attention is invited to the fact that this is the first direct drive Condor actually installed in any airplane, and also that the Fairey Co. has not yet produced a Reid type propeller for a Condor engine. The success of the airplane is therefore a matter of doubt, and it is believed that in any case the estimated top speed is rather high.

The Bechard automatic safety fire appliance

This apparatus was developed in France, and several articles in regard to it have appeared in aeronautic publications.

For purposes of a recent demonstration in England the apparatus was installed in a *SE-5* equipped with Hispano-Suize engine. The device consists essentially of the following parts:

- (a) Two spiral coil detectors.
- (b) One operating box.
- (c) One air tank.
- (d) One fire extinguishing liquid tank.
- (e) Two fire extinguishing liquid sprinklers.

The detecting coils are flat spirals made up of small copper tubing and filled with gasoline. These coils are located under the engine cowling near positions where fire is likely to occur, and are separately connected to the operating box. The heat of the fire vaporizes the gasoline and creates a pressure which is registered on a gauge on the operating box and also operates an automatic tripper in that box which turns the air pressure.

The operating box is located in the pilot's cockpit on the right side. This box contains a gauge to indicate the pressure in the detector system and also a gauge to indicate the pressure in the air tank. Inside the box is the automatic gear by which, when the pressure in the detecting coil reaches a certain point, the valve of the air flask is open and air is admitted into several lines to perform functions which will be described later. The operating box also has a hand operating lever for tripping the automatic gear and a hand operating lever for turning off the air pressure.

The air flask is located in the pilot's cockpit on the floor forward of the rudder bar. This flask is cylindrical in form and is about 8 inches in diameter and 18 inches long. The normal air pressure used is approximately 70 pounds, and the tank is filled by an ordinary tire pump.

The fire-extinguishing-liquid tank is located on the forward side of the fire bulkhead under the engine cowling. This tank has a capacity of 1 gallon and is filled with carbon tetrachloride. Extending into the top of the tank is an air lead from the operating box, and extending out from the bottom of the tank is a fire-extinguishing-liquid lead which splits and goes to the sprinklers.

The sprinklers are of the automatic whirling type, similar to lawn sprinklers.

Extending from the operating box are four air leads. One of these leads goes to a small cylinder with a plunger located over the switches and connected up so that admission of air under pressure closes the switches. Another lead goes to a similar cylinder

connected up to close the gasoline cock in the carburetor line. The third lead goes to a cylinder connected up to close the throttle. The fourth lead goes into the top of the liquid tank, as described above.

When the heat under the cowling raises sufficient pressure in either of the detectors the automatic gear in the operating box functions and air pressure from the tank is admitted to the four air lines, thus closing the switch, throttle, gasoline supply, and putting sufficient pressure on the liquid tank to cause the liquid to come out the sprays with sufficient velocity to give them a rapid whirling motion. These sprays are located high up under the cowling, well above the level of the top of the liquid tank.

Four demonstrations of the device were given, and in all cases it functioned satisfactorily. Two of these demonstrations consisted of small fires, such as might be caused by back fire or breakage of ignition wire. In these cases the device was rather slow to function, due to the lack of sufficient heat, but the fire itself was not of sufficient size to cause any material damage. The other two demonstrations simulated fire caused by a broken gasoline pipe. A full flow of gasoline was played in under the cowling. In each of these cases the device functioned in about six to eight seconds, and the fire was extinguished almost immediately. The fact that the pilot could also operate the device by his hand lever without waiting for the detectors to act was demonstrated.

The inventor claimed that the liquid tank was of sufficient capacity to extinguish three to five fires and that the air tank was of sufficient capacity to furnish air for an equal number of operations of the device. It was stated that the entire apparatus weighed 40 pounds, but the necessity of having a device of sufficient size to extinguish more than one or two fires was not seen, and it is apparent that the weight of the device could be very materially reduced. The stated weight of 40 pounds includes 16 pounds represented by 1 gallon of carbon tetrachloride.

The price of the apparatus complete is £40-0-0.

[From the British press]

Reconditioning of "R-33"

On August 18 the new nose of the airship *R-33* was lifted into place at Pulham, where the airship has been cradled since her accident of April 16 last. It will be remembered that the *R-33* was torn from her mooring mast by the gale and her nose crashed on the railings around the top of the mast, which punctured No. 1 gas bag and shattered the bow of the ship so that some 60 feet of her length was damaged. A stronger nose cap and mooring tube has been

designed, which weighs, we understand, over 18 hundredweight more than the old form. The cone of lattice girders is over 35 feet in length and is strongly webbed where the longitudinals join at the nose. Such strengthening is also carried through to the cage in the center of the first frame, to which metal bracing tubes are attached and which takes the actual mooring tube. The new end section has taken some three months to build, and it was placed in position in the remarkably short time of 50 minutes, over 200 men being employed in the rigging and lifting operation. A further day was required for the actual registering of the old and new parts, and it is expected that another month's work or more will be required on the ship before she is completed. Early in October it is hoped to begin the full-scale experiments which are to be used as a means of checking the stresses which have been calculated for the new 5,000,000 cubic feet capacity airships to be built at Cardington.

British and French air forces

Sir William Davison in Parliament on July 15 asked the Secretary of State for Air what is the total number of officers, men, and machines on the strength of the British and French air forces, respectively?

The Undersecretary of State for Air (Maj. Sir Philip Sassoon): "The strength of the Royal Air Force on July 1 last was 3,321 officers, 109 cadets, and 29,561 airmen; as regards machines, there were (including the equivalent of about 9 squadrons for the fleet air arm) 55 squadrons of an average establishment of 12 machines each. The strength of the French Air Service, according to the last information available, is approximately 140 squadrons of an average of 9 machines each; it is not possible to give the figures for personnel, for the reasons explained in my answer to Mr. Lansbury on February 23 last."

GREAT BRITAIN

MISCELLANEOUS NOTES

August, 1925

Location of new construction 1925-26

The Admiralty have decided that the two cruisers which are to be laid down in October next will be built at the Royal dockyards of Portsmouth and Devonport, and that the other two which are to be

laid down in February will be built by contract in private ship-building yards.

The four gunboats included in the program will be built by contract and orders will be placed as soon as possible.

Test of 6-inch twin turrets

It is understood that H. M. S. *Enterprise* has been fitted with the first completed 6-inch twin mount high angle fire turret intended for vessels of the *Nelson* and *Rodney* class. This turret has been mounted in place of the second 6-inch single gun from forward on top of the structure just forward of the bridge. It is not known whether this mounting is to be left permanently in the ship or whether it will be removed after trial firings.

As has been previously reported, the *Enterprise* has been assigned to the East India station and so far as known will commission for this station upon the completion of her trials.

Battle of the Falkland Islands—Loss of life due to sea gulls

I have been reliably informed by a former officer of the British Naval Service that a great deal of loss of life among the Germans who might possibly have been saved from the water was caused by sea gulls that constantly infested the Falkland Islands. This officer informed me that these birds are so ferocious that not infrequently it happens that they attack and kill the sheep in the hills of the islands.

An incident showing the fearlessness of these birds is connected with the loss of life of a German naval officer. Part of the crew of a British lifeboat had dragged this officer from the water, while some of the other members of the crew tried to beat off the birds. They were not successful, and although the officer was in the boat, he tumbled out of it, all the time being attacked by the gulls, and he drowned before he could be reached again.

This officer further stated that many survivors were horribly mutilated by the birds attacking them while they were in the water by plucking their eyes out. He further stated to me that these facts were not generally known. I do not believe that I have seen them in any comments relating to this action.

(From the press)

Three depot ships to be sold

A naval order published at Portsmouth yesterday disclosed some of the steps the Admiralty propose to take to save money for building replacement cruisers.

It has been decided, the order states, that destroyer flotillas in future shall rely upon the dockyards for repair facilities, and that no new destroyer depot ships or destroyer repair ships shall be laid down.

Repair parties and spare crews under these arrangements will also cease to exist and a corresponding reduction will take place in accounting staffs.

The policy of organizing destroyer flotillas without depot ships, spare crews, or repair parties is at once to be entered upon so far as the home commands and reserve fleet are concerned.

This will involve the sale of the special torpedo vessel *Hecla*, serving as depot ship at the Nore; the cruiser *Dido*, depot ship for reserve destroyer flotillas at Portsmouth; and the *Woolwich*, depot ship for destroyers in reserve at Devonport; the captain of destroyers in reserve in each port transferring to a flotilla leader.

The *Hecla* is an old ship of 5,600 tons, which was built in 1878 and purchased by the Admiralty. She was rebuilt in 1912 and was last recommissioned at Chatham in October, 1919. Since last December she has been commanded by Capt. the Hon. E. B. S. Bingham, V. C. She carries four 4-inch guns and one machine gun, steams at 13.4 knots, and has a complement of 170.

The *Dido* is a former cruiser of 5,600 tons, built in 1895. Her speed is 19.5 knots. She has been reduced to reserve at Portsmouth since August, 1920, and has been commanded by Capt. C. St. C. Cameron since April, 1924.

The *Woolwich* was built by the London & Glasgow Shipbuilding Co. in 1912, and is a vessel of 3,380 tons. She carries two 4-inch guns, steams at 13.5 knots, and has a complement of 160 officers and men. Since last August she has been commanded by Capt. M. L. Goldsmith, and she was recommissioned last in February, 1920.

British political activity in Baltic

The *Iswestija*, of Moscow, refers in a recent editorial to the increasing activities of English diplomacy in Scandinavia and the Baltic countries. The paper states that English politics are directed toward the military strengthening of the border States in order to make strategic use of them if necessary, although England does not desire any extension of Polish influence in the Baltic, as this would be equivalent to an increase of French influence. The paper alleges this to be the reason for England's anti-Polish policy in the Dantzig question and for the policy pursued at the recent Baltic conference. It refers further to the energetic activity of the English military mission in Finland for the reorganization of the

Finnish Army, as well as to the repeated English efforts toward a rapprochement between Finland and Sweden rather than Poland.

The paper lays special stress on England's interest in Denmark on account of the great strategical importance of the Sound and the Great and Little Belts, and claims this is the reason for England's efforts towards Denmark's participation in a guaranty pact. Denmark's participation will not only insure the German western frontiers but also the execution of articles 16 and 17 of the League statute, and make it possible for England to carry out a rapid naval action in the Baltic and Latvian and Finnish waters, which would be mainly directed against Leningrad. The soviet press has often referred to the significance of the Danish steps to deepen the Drogden, which actually means the opening of the Baltic to large war-ships. Sweden is doing the same thing in Flinterenden.

ITALY

MISCELLANEOUS NOTES

August, 1925

New bombing aircraft

After careful competitive trials of new heavy bombers built by the Caproni, Breda, and Piaggio companies, the Caproni *LB-4* was selected as the more satisfactory. However, before giving a production order for this type the Commissariat of Aviation arranged with Caproni to try out a two-engine and a three-engine installation in lieu of the four Spa engines. These experimental machines are known as the *LB-2* and *LB-3*, the figure indicates the number of engines. The *LB-2* is equipped with two Lorraine-Dietrich tractor engines, and the *LB-3* with two Lorraine-Dietrich tractors, and one Spa pusher, mounted on the upper wing and using a four-bladed propeller.

Mr. Caproni stated during a conversation recently that he had been extremely glad to have the opportunity of trying out the various engine installations. He says that these trials have clearly proven that a two-engine tandem arrangement is decidedly more efficient than a separate nacelle arrangement.

Mr. Caproni also said that he has conducted extensive trials of various wing sectors attached to the same fuselage. The object of these trials was to compare actual performance with the "paper performance" predicted from wind-tunnel data. As a result of these trials he finds that the predictions from the wind-tunnel data were quite accurate in every case.

The *LB-2* and the *LB-3* have already passed the builder's trials and are now ready for official trials.

Block trials of new 500-550-horsepower engine

The Isotta-Fraschini Co. is now conducting block trials on a new experimental engine known as the "Asso," 500-550-horsepower. Thirty hours of the 50-hour test have already been completed and the results are entirely satisfactory.

The Fiat Co. is building three experimental types of engines of 400, 550, and 850 horsepower, known as the A-20, A-22, and A-25, respectively. The A-20 will be ready for trials in the near future and the other two at a somewhat later date.

Italian seaplanes in Schneider cup race

Italy expects to participate in the Schneider cup race with two flying boat seaplanes which are being built by the Macchi Co. These racing planes have been designated *M-33* and it is understood that they should be ready for flight tests in the very near future.

According to articles in the press the *M-33* is a cantilever monoplane flying boat, powered with a Curtiss D-12 engine, with tractor propeller. The wing span is 10 meters (32 feet 9.6 inches). It is stated that a speed in excess of 190 miles per hour is expected.

Cruise of "Esperia"

On July 3 and 4 the Italian rigid airship *Esperia* made a cruise to Tripoli and return. A landing was made at Tripoli, Italian Tripolitania, for the disembarking of the undersecretary of state for the colonies, Hon. Cantalupo. After this stop of about two and one-half hours, the *Esperia* returned via Malta and Trapani to the Ciampino airdrome (near Rome). The round trip was made in a little over 24 hours, and the airline distance covered was approximately 2,400 kilometers.

(From the Italian press)

Climbing record claimed by pursuit plane S-52

According to the Italian press (confirmed verbally by an air-service officer) an *S-52* pursuit plane, piloted by Commander De Bernardi, recently climbed to 5,000 meters (16,400 feet) in nine minutes. According to the report this test was officially observed

by representatives of the Aero Club of Italy, which organization will recommend to the Federation Aeronautique Internationale that a world's record for rate of climb be established.

The Moroccan affair and Italian opinion

The press continues to watch closely the Moroccan campaign as well as the activities of the revolutionists. L'Inea Nazionale expresses the opinion that premature negotiations with Abd-el-Krim would be a victory for the communists. It further hopes that the French will emerge from the present struggle victoriously because it will benefit all the powers having African possessions. "We must present a common front to this Mussulman revolution. What is happening now in Paris is just what happened in Italy at the time of the evacuation of Valona, which was brought about by the infamous threats of the socialist party. France is defending much more than her mere possession of Morocco, she is defending the prestige of all colonial powers."

It is believed that Abd-el-Krim by his alleged peace proposals desires to divide France and Spain in offering the former an immediate peace at the expense of the latter. In the clause concerning the entry of the Riff in the League of Nations the hand of Germany is seen. Excluded from Africa at the end of the war, Germany has every interest in giving certain African problems an international character, in order that they may be brought before international assemblies where Germany may treat on an equal footing with the allied powers.

The Paris Temps of August 1 publishes that the Italian consuls in Morocco have been ordered to remain at their posts during the vacation period in order to follow developments and report these very fully to Rome. It appears that this information will be used to check that obtained by Italian unofficial personalities who profited by their sojourn in Ajdir to obtain mining concessions from Abd-el-Krim.

Names assigned new submarines

Two submarines of medium radius, one of which is at present being built at the Cantiere Navale di Monfalcone and the other at the Cantiere Navale Tosi di Taranto, have respectively been assigned the names of *Des Geneys* and *Tito Speri*.

JAPAN

REPLACEMENT PROGRAMS

August, 1925

(From the Japanese press)

The replacement program is under consideration by the navy technical department and the naval general staff, but owing to differences of opinion the matter is still pending. As the matter now stands, there are two plans being studied by the authorities concerned and the final decision will be given by the Minister of the Navy. The plans are as follows:

Plan A.—1. To build four cruisers of 10,000 tons, 10 large-type submarines during three years beginning the fiscal year 1926–27; cost, yen 158,000,000.

2. During three years beginning the fiscal year 1928–29 to build the following: First-class destroyers, 20; special-service ships, 2; gunboats, 3; cost, yen 162,000,000.

Plan B.—1. To build the following during five years beginning the fiscal year 1926–27. Cost, yen 320,000,000: First-class destroyers, 20; large-type submarines, 10; special-service ships, 2; gunboats, 3; 10,000-ton cruisers, 4.

The advocates of plan A say that due to the present financial condition of the country the finance department will oppose plan B. Those favoring plan B say that this is not a naval expansion but a replacement and that the finance department should approve of their plan regardless of other conditions. Also from the standpoint of dockyard efficiency, plan A is absolutely undesirable as regards the time of final completion, as the number of ships and the total amount of expenditures are the same in both plans.

The construction of four 10,000-ton cruisers, 20 first-class destroyers, 10 large-type submarines, 2 special-service ships, and 3 gunboats which is under consideration by the Navy Department is merely a replacement of those ships which are passing into the third-period age (16 years for cruisers, 12 years for destroyers and submarines), and therefore is not a naval expansion. The names of the ships entering the third-period age by the time the replacement program will be completed are as follows:

| | Completed | Year passing into third period age |
|--------------|-----------|------------------------------------|
| Cruisers: | | |
| Tone..... | 1910 | 1925 |
| Chikuma..... | 1912 | 1927 |
| Hirato..... | 1912 | 1927 |
| Yahagi..... | 1912 | 1927 |

| | Completed | Year passing into third period age |
|---|-----------|------------------------------------|
| First-class destroyers: | | |
| Umikaze..... | 1911 | 1922 |
| Yamakaze..... | 1911 | 1922 |
| Urakaze..... | 1917 | 1929 |
| Isokaze..... | 1917 | 1929 |
| Hamakaze..... | 1917 | 1929 |
| Amatsukaze..... | 1917 | 1929 |
| Tokitsukaze..... | 1917 | 1929 |
| Kawakaze..... | 1918 | 1930 |
| Second-class destroyers: | | |
| 22 destroyers, from Sakura to Enoki, will enter the third period age during the year 1930-31. | | |
| Third-class destroyers: | | |
| 29 destroyers, from Fubuki to Ayanami, will enter the third period age during 1930-31. | | |
| Submarines: | | |
| HA-1..... | 1908 | 1919 |
| 2..... | 1908 | 1919 |
| 3..... | 1911 | 1922 |
| 4..... | 1911 | 1922 |
| 5..... | 1911 | 1922 |
| 6..... | 1912 | 1923 |
| 7..... | 1916 | 1928 |
| 8..... | 1916 | 1928 |
| 9..... | 1918 | 1930 |
| 10..... | 1914 | 1926 |

Those ships mentioned above and many more of the smaller craft are passing into the third period age and are thus no longer useful in ocean warfare, and it is but natural that these ships should be replaced. The replacement mentioned above is the minimum, but the general staff is dissatisfied with the above plan as entirely too weak, saying that too much consideration has been given to the financial part of the matter, but the Navy Department, on the other hand, knowing the financial policy of the Government, thought it best to keep the plan within the scope as aforementioned, overcoming the shortage of ships by improvement in design, etc.

The Navy Department has completed the new naval construction plan calling for the construction of cruisers, submarines, and other vessels, amounting to 100,000 tons, the total expenditure being about yen 320,000,000.

The following vessels are to be constructed under the plan: Four 10,000-ton cruisers, 19 large destroyers, 1 large sized submarine, 1 submarine cruiser, 10 mine-laying submarines, 2 special service vessels, and 3 gunboats. According to the present schedule the vessels are to be built in five years' time, and are intended to replace cruisers and other vessels which are to reach the second stage of age (sixteenth year) in 1927.

The plan is the second of the kind since the Washington Naval Agreement was made, and the Navy Department claims that it is

the minimum schedule consistent with the Empire's defense policy. Admiral Takarabe, navy minister, is said to have declared that he is determined to push the plan at the risk of his being kicked out of the ministry. On the other hand, an expenditure of yen 320,000,000 is regarded overburdensome upon the national treasury at this time of business depression, and the Finance Department is expected to cut the amount drastically. What attitude the Navy Department will take in case a wholesale cut is made has been the subject of lively discussion in many quarters.

A certain naval critic has commented on the new plan substantially as follows:

Although the Navy Department claims that the new vessels are to replace old ones, one of the powerful motives for making the plan is the anxiety of the navy to be prepared against the possible calling of a second international conference for limiting the number of auxiliary vessels, cruisers in particular.

When the 8-8 naval plan was established under the Hara Ministry, Japan was busy building capital ships, neglecting cruisers. Then came the Washington Agreement, and the imperial navy has been paying more attention to the construction of auxiliary vessels, and made the first construction plan right after the naval pact. However, Japan has been feeling that the first plan is utterly inadequate in view of the fact that both England and the United States have been greatly expanding their auxiliary vessels as well as aircraft.

The navy has been alarmed by the report that President Coolidge is intending to call a second international conference next spring, and wants to be better prepared for such an emergency.

Realizing that an agreement at such a conference will be predicated on the relative strength of powers, the navy is anxious to make out a construction plan before the opening of such a conference. The navy feels that Japan made a disadvantageous agreement at Washington in the first conference and does not want to repeat the same mistake again.

More gunboats proposed

The Navy Department is considering a proposal to build eight gunboats for the North China waters and the Yangtse River.

At present the protection of Japanese interests in these districts is assigned to the first detachment of the squadron and Bako naval port. The area assigned to the former is very extensive, including the North China coast and the Yangtse. The detachment consists of the coast-defense ship *Tsushima*, the gunboats *Ataka*, *Saga*, *Seta*, *Katata*, *Hira*, *Hotsu*, *Sumida*, *Fushimi*, *Toba*, *Uji*.

The reasons advanced in favor of the construction of new boats are that troubles in these districts have been incessant of late; that

gunboats other than monitors are unfit for the navigation on the upper reaches of the Yangtse, particularly in the low-water season; that the Japanese squadron is numerically inferior to those of Britain and America, while the desire of Japanese residents for the dispatch of more warships is growing. Moreover, the *Fushimi* and *Sumida* are nearing their third stage.

While constructing two gunboats to supersede the *Fushimi* and *Sumida*, the Navy Department proposes also to build three 300-ton boats of the *Hira* type and three 150-ton gunboats of the *Fushimi* type, or eight ships in all, in five years from the next financial year, the total expenditure being yen 8,000,000.

Yawata Steel Works preparing for the replacement program

In view of the replacement program proposed by the navy, the Yawata Government Steel Works is already making preparations to meet the increased demand for armor plates, etc.

The amount of orders placed by the navy has been about 20,000 tons yearly (yen 5,000,000). However, if the program is to be carried out, orders for materials produced by the works are expected to reach about 60,000 tons yearly.

JAPAN

MISCELLANEOUS NOTES

August, 1925

Minor maneuvers, 1925

(From the Japanese Press)

Minor maneuvers will be held early in October and will last for about 10 days; will be held in the Pacific Ocean with Toky-wan as center.

The combat fleets will be the defending force, and ships attached to the various naval stations will be organized into a temporary third fleet and act as the attacking fleet. The attacking forces will assemble in Ise-wan and proceed eastward to attack Tokyo while the defending forces will be located around Toky-wan.

All of the aviation force attached to Kasumigaura and Yokosuka Aviation Corps and part of the Sasebo and Omura Aviation Corps will participate. A special feature of the maneuvers will be an engagement between airplanes over Tokyo.

The ships which are expected to participate in the maneuvers are as follows:

Battleships: *Mutsu*, *Hyuga*, *Yamashiro*, *Fuso*, *Nagato*, *Ise*.

Battle cruisers: *Kongo*, *Hiyei*, *Kirishima*.

Second-class cruisers: *Kinu*, *Oi*, *Abukuma*, *Jintsu*, *Tenryu*, *Nagara*, *Natori*, *Sendai*, *Isuzu*, *Tatsuta*, *Hirato*, *Yahagi*.

Airplane depot ships: *Hosho*, *Wakamiya*.

Submarine tenders: *Jingei*, *Chogei*, *Karasaki*.

Mine-sweeper squadron: *Tokiwa*, *Aso*, 1st, 2d. and 6th Mine Sweeping Divisions.

First-class coast-defense ships: *Iwate*, *Nisshin*.

Destroyers: 1st, 4th, 29th(?), 13th, 15th, 16th, and 27th Divisions, also no. 22(?) and the training destroyers *Urakaze* *Shiratsuyu*, *Mikazuki*.

Submarines: 4th, 6th, 24th(?), 14th, 17th, 26th, 15th, 16th, 5th, 23d, and 3d Divisions.

Special service ships: *Settsu*, *Mamiya*, *Shiriyu*, *Kamoi*, *Hayatomo*.

Expenditure authorized for minor maneuvers is 500,000 yen.

The area of the naval maneuvers to be held from October 4 to 16 extends from Ominato in the north to the Bonin Islands on the south and along the shore of Honshu. Prior to these maneuvers the ships will engage in individual maneuvers while proceeding from their home yards. Over 50 vessels of the fleet are to participate.

Invading force.—(Admiral Okada): *Matsu*, *Yamashiro*, *Fuso*, *Hyuga*, *Kinu*, *Abukuma*, *Oi*, *Tenryu*, *Jingei*, *Hosho*; 12 destroyers; 7 submarines; 4 mine sweepers.

The invading force will proceed from the Bonin Islands with the object of attacking Tokyo.

Defending force.—(Vice Admiral Saito): *Kongo*, *Kirishima*, *Nagato*, *Ise*, *Hiyei*, *Haruna*; 10 destroyers; 7 submarines; 5 mine sweepers.

The defending force will base at Ise Bay, but the actual encounter between the two forces is expected to take place near the Sea of Kishu.

The defending forces will use about 50 planes and the Astra dirigible; the air forces to be taken from the Yokosuka and Kasumigaura Naval Air Stations. These air forces will cooperate with the airplane ship *Wakamiya* and will use Akenogahara and Hamamatsu as bases. The air force of the invading force will be taken from the Sasebo and Omura Naval Air Stations and will use the *Hosho* as their base.

(From the Japanese press)

Itinerary of "Iwate" (training ship)

| 1925 | 1926—contd. |
|---------------------------|---------------------------------|
| Nov. 9—Leave Yokosuka. | Jan. 25—Leave Melbourne. |
| Nov. 14—Arrive Shanghai. | Jan. 30—Arrive Hobart. |
| Nov. 18—Leave Shanghai. | Feb. 3—Leave Hobart. |
| Nov. 21—Arrive Bako. | Feb. 6—Arrive Sydney. |
| Nov. 25—Leave Bako. | Feb. 12—Leave Sydney. |
| Nov. 27—Arrive Hongkong. | Feb. 18—Arrive Wellington. |
| Dec. 1—Leave Hongkong. | Feb. 23—Leave Wellington. |
| Dec. 4—Arrive Manila. | Feb. 26—Arrive Auckland. |
| Dec. 8—Leave Manila. | Mar. 3—Leave Auckland. |
| Dec. 14—Arrive Singapore. | Mar. 8—Arrive Spa (?). |
| Dec. 19—Leave Singapore. | Mar. 11—Leave Spa (?). |
| Dec. 22—Arrive Batavia. | Mar. 22—Arrive Truk. |
| Dec. 26—Leave Batavia. | Mar. 26—Leave Truk. |
| 1926 | Mar. 29—Arrive Saipan. |
| Jan. 4—Arrive Freemantle. | Mar. 31—Leave Saipan. |
| Jan. 9—Leave Freemantle. | Apr. 3—Arrive and leave Futami. |
| Jan. 16—Arrive Adelaide. | Bonin Islands. |
| Jan. 20—Leave Adelaide. | Apr. 6—Arrive Yokosuka. |
| Jan. 22—Arrive Melbourne. | |

Distance to be covered, 16,469 nautical miles.

Submarine "RO-27" cracks propeller shaft

While on her way from Saeki Bay, Kyushu to Kure, on a cruise along the Japan Sea coast, submarine *RO-27* was found to have cracked her propeller shaft. On arrival at Kure she had to be docked for repairs, which are expected to require some months.

Submarine launchings

Submarine *I-53* (1,500 tons) was launched at Kure on August 5, 1925.

Submarine *I-55* (1,500 tons), under construction at Kure, will be launched September 2, 1925.

Fire on board "Tenryu"

Fire started in No. 1 engine room of the *Tenryu* on August 2 while engaged in maneuvers in Bungo Channel, and with the assistance rendered by the other ships of the fleet the fire was confined to No. 1 engine room. She arrived at Kure on August 7 to undergo repairs.

Navy Department estimates for the fiscal year 1926-27

The estimates for the Navy Department for the fiscal year 1926-27 were given by the Navy Department to the Finance Department. The total amount is approximately yen 270,000,000, or an increase of about yen 45,000,00 as compared to the budget for the current fiscal year (1925-26). Some of the principal items are as follows:

| | Yen |
|--|------------|
| Maintenance of new ships (<i>Kako, Furutaka, Akagi</i> , destroyers, etc.) | 10,000,000 |
| Creation and maintenance of 2½ new air companies----- | 3,000,000 |
| Maintenance of deck planes (some papers show yen 3,500,000 on above item)----- | 2,100,000 |
| Additional expenditure for improvement of naval education----- | 500,000 |
| Additional amount for allowances to cadets, naval students, families of volunteers, etc----- | 700,000 |
| Increase on food and clothing expenditures----- | 800,000 |
| Improvement, extension, and maintenance of land radio stations-- | 500,000 |
| Adoption and renewal of modern arms (some papers show yen 20,000,000 on above item)----- | 10,000,000 |
| Repair of ships (some papers show yen 300,000 on above item)--- | 800,000 |
| Renewal of submarine batteries----- | 1,000,000 |
| Creation of department of aeronautics (some papers show yen 200,000 on above item)----- | 100,000 |

The estimates for the replacement program which the navy proposes to start from the fiscal year 1926-27 are not included above, but same will be presented later under a supplementary budget. The first year's proportionment will be yen 8,000,000.

Naval forces at Port Arthur to be increased

The increase of the naval strength at Port Arthur has been pending since the withdrawal of the Ryojun Coast Guard last March. Just how soon the proposed change is to take place has not yet been definitely settled, but the ships to be stationed at Port Arthur will consist of a light cruiser of 5,000 tons as flagship having on board a rear admiral, and four more destroyers of the 600-ton class in addition to the four now stationed there. The officers and crews of the ships to be stationed there will number about 1,300 as compared at 250, the strength of the Ryojun Coast Guard who were removed last March.

Naval recruiting

The recruiting for the navy has heretofore been done by the army but this has been found unsatisfactory and the navy has de-

cided to do their own recruiting beginning the next fiscal year. For this purpose 11 offices will be opened in various parts of the country, 2 officers and 2 petty officers are to be assigned to each office. The additional expenditure involved in this, ¥140,000, will be listed in the budget for the fiscal year 1926-27.

Smokeless powder

A new smokeless powder has recently been produced by the naval powder factory and has successfully undergone various tests at the Kamegakubi Ordnance Testing Station near Kure. The powder will be adopted by the navy under the name of the 1924 smokeless powder.

Oil for the navy

The Japanese Navy is preparing to subsidize oil enterprisers if a shortage of funds should oblige them to suspend boring operations. The authorities believe that some of the wells given up as useless are still worth working. The fuel department of the navy is now turning to the domestic field. The output in Japan does not at present exceed 300,000 tons annually.

Oil fields in North Karafuto are expected to produce about 50,000 tons a year for two or three years to come and 100,000 tons in the years to follow.

The production of oil shale at Fushun will be 35,000 tons a year for the present, to be increased to 50,000 tons later.

The Government is being urged to acquire unexplored oil fields abroad.

Radio communication while submerged

The Japanese Navy is going to adopt radio apparatus which can be used by submarines cruising under water for communication with land as well as between ships.

Heretofore the only means of communication used by Japanese submarines while submerged was between ships.

The *RO-53* will be equipped with underwater antennae and sent to Hiroshima-wan to conduct experiments between the ships in Kure Harbor.

NOTE.—This indicates that the Japanese submarines are just commencing the use of loop antennae for reception of radio while submerged.

Large radio station to be erected near Nagoya

The largest radio station in the Orient is to be erected near Nagoya City by the Nippon Musen Denshin Kaisha (Japanese Radio Corporation), which is shortly to be organized as a semiofficial enterprise with a capital of 20,000,000 yen jointly by the department of communications and private capitalists.

The sending station will be located at Isami-mura, about 10 miles from the city of Nagoya, and the receiving station at Kaizo-mura, Yokkaichi. The former will occupy 180,000 square yards and the latter 40,000 square yards. Both will be equipped with 8 towers 250 meters high. They will be 50 meters higher than those at the Haranomachi Station, which is now the largest plant in Japan. Construction will be started at the end of this year and will be completed in three years when it will be possible to communicate direct with Germany and France.

The wireless station will cost 7,500,000 yen. There is no station now in England powerful enough to communicate direct with the Nagoya station now under contemplation.

The Japanese Radio Corporation will also build a station near Haranomachi, Iwaki Province, for communication with America, another plant somewhere in the Kwanto district for communication with China, India, Australia, the Dutch East Indies, and Siberia, and a central station at Tokyo for receiving purposes. This will become the center of the radio web of Japan.

Normal school graduates to be admitted to navy

The naval regulations will be revised in order to permit the enlisting of graduates of normal schools into the navy, same as is now done in the army.

About 300 of these graduates will be admitted the next year (April, 1926), and the necessary expenditure for this will be listed in the budget for the fiscal year 1926-27.

The principal object for admitting these graduates will be for the purpose of qualifying them to lecture to school children on navy subjects. Upon entering the service they will be admitted to naval barracks to give them the fundamental naval education, after which they will be assigned on board ships for practical training.

The number to be admitted will be gradually increased if the results are found favorable.

Length of service will be five months.

(Source: Official)

Japanese naval tankers at San Pedro

On the occasion of a recent visit of the Japanese naval tankers *Hayamoto* and *Sata* to San Pedro the following information was obtained:

Hayamoto.—Gross tonnage, 8,000 tons; steel schooner; length, 472 feet; beam, 58 feet; draft, 35 feet; speed, 10 knots. Berthed at General Petroleum Co., which company is supplying this vessel to capacity (52,000 barrels of fuel oil). *Hayamoto* is commanded by S. Yamaguchi, of the Imperial Japanese Navy; Executive Officer K. Oguwa, of the Imperial Japanese Navy, who speaks six languages fluently. Akiga, Japan, is the home port of this vessel.

Sata.—Gross tonnage, 8,000 tons; steel schooner; length, 455 feet; beam, 58 feet; draft, 35 feet; built in 1920 by Tokuyama Dock Co. for the Imperial Japanese Navy; speed, 10½ knots. Berthed at General Petroleum Co., which company is supplying this vessel to capacity (54,000 barrels of fuel oil). *Sata* is commanded by L. Nagai, of the Imperial Japanese Navy.

Application was made to S. Abe, secretary Japanese Association, San Pedro, to go aboard vessels when berthed. He advised this request could not be granted until after he had been in conference with ships' commanding officers. Request was likewise refused after vessels were berthed by the above-mentioned secretary and ships' officers (apparently the officers of the deck).

Japanese tankers make a practice of sending radio positions only when about one day from destination, at which time they radio their loading stations privately.

Partial movements of vessels for the past few months are as follows: *Sata* sailed from San Pedro April 21 for San Francisco. Sailed from San Francisco for Japan via Honolulu April 29. Cargo carried and mission unknown. *Hayamoto* sailed from San Francisco April 16 for Japan via Honolulu. Arrived Honolulu April 27 and sailed from Honolulu May 2, 1925. Cargo and mission undetermined.

Aeronautical supremacy—Japanese preparedness

(Article by Haakon H. Hammer in "Japan")

The best-known and widest-read editorial writer in America recently quoted some of my remarks on aviation conditions in Japan, which were made by me on my arrival from the Orient, and wondered who and what was behind this "propaganda."

My answer is that the only force behind my statement is truth.

I have noticed that the American public has been deliberately misinformed about Japanese aviation conditions and have written this article for anyone sufficiently interested in and familiar with the subject to recognize my story as an absolute unbiased statement of facts.

It has been stated and restated in certain American newspapers that Japan is producing 500 airplanes per month. This statement, however, must be based on some absurd misunderstanding. The cost of such a production would, conservatively figured, be 35,000,000 yen per month, or 420,000,000 yen per year, while the total sum appropriated for the entire upkeep of aviation in Japan, military as well as civil, is 38,080,000 yen per year.

Airplane factories in Japan are allotted contracts in the same manner as airplane factories in America and other countries. One factory will secure an order for from 50 to 100 planes to be delivered within a period of, say, 6 to 12 months. A fixed monthly production does not come into the question at all. As to yearly production, Japan is not producing and could not possibly under her present circumstances produce any more than from 300 to 350 planes per year, which would average less than 30 planes per month.

I am fully aware that not only Japan but also America is far behind the European powers in aviation, and I firmly believe that all fair means should be used to develop aeronautics in America. But is it not short-sighted to build up enthusiasm on misinformation? Surely the development of American aviation can be attained without the spreading of untrue and unfounded reports which can not help but sow the seed of national hatred and suspicion.

Japan—the small island empire, with a population of over 60,000,000 people; the one oriental nation which has adopted and encouraged the influx of occidental civilization and which for that very reason has become a world power—was abruptly awakened, then tutored, and one of the first things she learned was that a nation can only be a world power by the virtue of her military strength. In record time she built up a powerful army and navy, and it has recently been stated, both in Europe and in America, that Japan is now making enormous strides toward aeronautical supremacy. Her past record is serving to give evidence to these reports, and a certain veil of secrecy which apparently is enveloping the aeronautical progress of the country has been taken as further proof of latent lofty ambitions on the part of Japan.

While visiting airplane factories in Europe recently I learned that several of these concerned has just sold one or more of their latest

type of machines to Japan, and, to cap the climax, the steamer on which I embarked for the Orient was delayed for several hours in Genoa due to difficulties in loading two large Italian-built planes consigned to Kobe. The circumstantial evidence was most convincing, and I consequently arrived in Japan fully prepared to closely observe an immense aeronautical development. My subsequent investigation into the subject extended over a period of four months, and the result could not possibly have been more surprising to anyone than it was to myself.

I found that the veil of secrecy drawn around Japanese aeronautics was not, as supposed, to hide preparations, but, on the contrary, to hide the lack of preparedness. I found that the many different machines were imported not to augment an existing air fleet, but for the purpose of deciding on what type should be chosen for a future one. I found that as far as equipment was concerned the aeronautical bureaus of both the army and navy appear to be in an experimental stage, instead of in a position for productive steady development, and as the basis of my findings I offer facts and figures which will speak for themselves.

LACK OF INTEREST

The general public of almost every nation is to-day showing a keen interest in aviation. In the United States the interest had found expression in the round-the-world flight and in the 3,000 miles coast-to-coast aerial mail service. In Europe numerous commercial airplane routes have brought aviation to the very forefront of everyday transportation, but no rule without an exception, and in Japan public interest in aviation is utterly lacking. The only time when aviation is discussed publicly is when an accident has occurred. All accidents are faithfully recorded in the newspapers, while reports on any subsequent achievements are equally faithfully left out. A totally wrong impression of aviation is therefore being created in the public mind. Aviation in Japan still stands for something vague and undeveloped. Something for the army and navy to experiment with, but otherwise entirely unsuited for general use. The chief reason for this can undoubtedly be found in the fact that the geographic situation of Japan prevented her aviation corps from any participation in the World War, and Japanese aviation did therefore not benefit from the incentive and experience gained by other nations, who admittedly have built up their present-day aeronautical enterprises on the solid foundation of their war experiences.

ORGANIZATION OF AVIATION

The aeronautical history of Japan dates back to the year 1909, when a temporary institute for the study of balloons for military

use was established under the War Ministry. In 1910 a few Henry Farman machines were imported from France, and the same year Captain Tokugawa was the first army officer to attempt a flight. In 1915 it was decided to commence organization of an army aviation division consisting of about 3,000 men. This division is commanded by a lieutenant general and is divided into two principal departments: (a) The Aeronautical Bureau and (b) the Aviation Corps.

The Aeronautical Bureau has charge of the purchase of material and supplies, general investigation, preparation of designs, supervision of construction, etc. This bureau also has control of the three army aviation schools:

1. The school at Tokorozawa, for piloting and mechanical training with the ordinary school course lasting 11 months. Certain graduates from this school are then chosen and assigned to either or both of the following:
2. The school at Shinoshizu, where a six months' course for scouting and air tactics is provided; or,
3. The school of Akeno for a four months' course of bombing and firing.

Both army and navy teach and train their own mechanics, who remain in the service permanently. Higher positions in the engineering and mechanical service are filled with graduates from the civil universities. No technical military colleges have been established.

The above system is considered quite satisfactory, although it does not in any way provide for the building up of a reserve force.

The Aviation Corps is made up of six aviation battalions, all stationed at various parts of the country and each possessing its own independent equipment.

Battalions 1 and 2 are stationed at Kagamigahara in Gifu Prefecture.

Battalion 3 in Yokaichi, Shiga Prefecture.

Battalion 4 in Tachiarai, Fukuoka Prefecture.

Battalion 5 in Tachikawa, Tokyo Prefecture.

Battalion 6 in Heijo, Chosen (Korea).

In addition to the above a special balloon corps is stationed at Tokorozawa.

While the organization of an army aviation division was commenced in 1915 it was not until 1919, after the World War, that a French aeronautical corps was brought to Japan for the purpose of teaching aviation and at the same time to act as advisers in the organization of aviation. As a natural consequence the army equipment then adopted was chiefly of French design and construction.

The naval aviation department is made up of four naval flying corps, with a total strength of 3,000 men. Their training takes

place at the Kasumigaura aviation station and varies but little from the army training. Foreign teachers were used here also during the first few years.

PRESENT EQUIPMENT

To-day, however, all foreign instructors have been dismissed, and aviation, both in the army and navy, is being taught exclusively by Japanese. At the present moment the total machines in the possession of the army, including reserves, number approximately 500, while the navy has an equipment of about 400. The principal types used by the army are the *Nieuport 24* and *Henriot 14* for training purposes; the *Salmson 2A2* for scouting and the *Nieuport 24* and *29* as fighting planes. Some *Farman 60* are also being used as bombing planes. The type of motors principally used are the Le Rhone 120 horsepower and the Salmson 235 horsepower. The Hispano-Suiza 300-horsepower motor has just been chosen as part of the standard equipment and will gradually replace the insufficiently powered Le Rhone in all other but school machines. At the moment there is not one single high-powered plane among the regular army equipment.

The current year's appropriation for the army aviation division is 20,000,000 yen, and due to the strict retrenchment policy of the present Japanese Government it is quite certain that no more will be forthcoming. While this sum will be quite sufficient for ordinary upkeep, it does not leave room for any general revision and subsequent renewal of equipment.

The navy has a larger variation of machines than the army, among others, several Curtiss planes, and at the moment it is experimenting with both the Dornier and the Rohrbach type of twin-motored flying boats. Their lighter-than-air division is keenly interested in rigid airships, but the present airship equipment consists only of two nonrigid ships, the *S. S.* and the *A. T.* types. The naval aeronautical appropriation for the current year is 18,000,000 yen and does not provide for the building or the purchase of any rigid or semirigid ships.

It is of interest to note that all new military aviation equipment is constructed in Japan, and as most of it is of foreign origin it is being manufactured either under license or through Japanese acquirement of patent rights. Sample machines are purchased from abroad for factory use only, and the following plants in Japan are now engaged in the construction of airplanes and motors for military use:

The Kawasaki Dockyards, Kobe.

The Mitsubishi Dockyards, Nagoya.

The Nakajima Aeroplane Works, Kobe.

The Ito Hikoki Kenkyujo, Tsudanuma, Chibaken.
 Tokyo Gas and Electric Works, Tokyo.
 Aichi Watch Manufacturing Works, Nagoya.

Cost of airplane production is extremely high in Japan, partly due to the high cost of skilled labor and partly due to the excessive cost of material. Construction costs in several cases have turned out more than 100 per cent in excess of the figure at which the same plane could have been purchased direct from the original manufacturer abroad. But in this instance national independence is placed above the thought of economic gain.

No "all-metal" machines are as yet being built in Japan, but as plenty of aluminum can be found in the country it will only be a question of time before duraluminum planes will be constructed there.

THE JAPANESE AS AVIATORS

The Japanese aviation corps have no records to their credit, neither in regard to distance nor altitude; in fact, any attempt of record flying is strictly contrary to military rules. This circumstance combined with the fact that only accident reports are considered good aviation news by the Japanese press is one of the chief reasons for the general impression that the Japanese are very poor aviators.

This question is one of particular interest and has been an object of my special attention. During the period of my recent visit to Japan there were several attempts made of an army flight from Tokyo to Seoul, a distance of about 900 miles. The flight did not succeed. The machines were forced down repeatedly due to motor trouble. A special test of civil aviation also took place, at which occasion successful candidates were to receive their diplomas, but not one succeeded in passing the simple tests prescribed. And then again I have flown with Japanese pilots. I have watched them make antics in the air with perfect ease and efficiency. Their courage and their nerve is beyond criticism and military statistics show that last year both army and navy flew an aggregate of 35,029 hours with accidents limited to one smash-up per 110 hours' flight and one killed to every 2,000 hours. Both figures are very creditable and compare favorably to fatalities of other nations. The evidence is very conflicting, but nevertheless I have reached the conclusion that the Japanese make excellent pilots, but, due to the fact that an entire lack of "mechanical sense" is so general among them, they are not entitled to the broader classification as first-class "aviators." The motor to them remains just a piece of machinery to be driven as hard as at all possible. They do not feel that in reality they are

being carried through space by a span of horses and that the service these horses can render depends on the care and attention they receive.

Next to motor difficulties, landing troubles, of more or less serious nature, are the most frequent causes for accidents, and here due allowance must be made for the very unfavorable topographical condition of the country. Miles and miles of cultivated area, all cut up in small water-covered rice fields, renders it almost impossible to make a safe emergency landing, even for the most experienced pilot. Taking everything into consideration it must be said in all fairness, that the Japanese possess an abundance of the calm courage and nerve, the very material from which pilots are molded, but as yet they lack in "mechanical sense" and experience.

CIVIL AVIATION

The navy is still investigating what type of aircraft is most suitable for battleship equipment, and the army, apart from having conducted experiments with regard to different types of landing gear, including skis and combination land and sea machines, appear to confine themselves to ordinary routine practice. No night flying has as yet been attempted, and the general progress of aviation is suffering tremendously from the complete absence of civil aviation, which in all other countries has proven itself a very valuable stimulus.

The total number of civil machines in Japan does not exceed 50 and most of these are old obsolete military planes, sold or given away to private individuals for next to nothing. There are no air mails and no commercial air routes in operation. There is only one factory in Japan building commercial type machines. Seven planes have been produced by them so far, but the factory has to struggle against financial difficulties due to the lack of general interest and support.

Climatic conditions for flying in Japan are excellent and there is absolutely no reason why commercial aviation, with comfortable passenger planes, maintaining regular schedules, should not be developed, not only between the principal cities within Japan but also connecting Japan with points of importance on the Asiatic continent.

In the beginning such air lines would have to be heavily subsidized, but other nations have fully realized that civil aviation is of sufficient national value to warrant the expense. Efficient air service is not only recognized as a great commercial asset, but also as an indispensable air reserve of trained men and equipment, ever ready in case of emergency.

And here is where the myth of Japanese air supremacy is hopelessly shattered. The Japanese Government has appropriated 80,000 yen—repeat, not eight or eighty million, but eighty *thousand* yen—for the development of commercial aviation; a sum not large enough wherewith to purchase one single medium-size passenger plane. Nothing could better illustrate the failure of the Japanese Government to visualize the importance of aviation in our present-day life nor could anything better illuminate the true Japanese aeronautical position, which, if a menace to anyone, must be of greatest menace to herself.

AVIATION NOTES

Referring to page 52, BULLETIN for April, 1925, the following Japanese naval aviation information, as of March 30, 1925, is believed to be authentic:

- (1) Number of airplanes possessed by the Japanese Navy on March 30, 1925:

| | |
|---|-----|
| Service type..... | 312 |
| Training type..... | 161 |
| Experimental and miscellaneous types..... | 25 |
| Total | 498 |

- (2) Number of airplanes ordered by the Japanese Navy during the past two years..... 400

It will be noted that the total of 498 airplanes shows an increase of 98 airplanes over the total of 400 airplanes possessed by the Japanese Navy on October 1, 1924. A total of 193 airplanes were actually in service at the various naval air stations during the month of April, 1925. It is believed that the total of 193 airplanes is the correct total of all airplanes actually at the naval air stations during the month of April.

It is further believed that no airplanes are yet permanently carried on board Japanese naval vessels, despite the information given by the Japanese Navy Department in reference report, in which it is stated that "in addition to the above battleships, battle cruisers, cruisers and submarines carry airplanes." It is therefore indicated that a large reserve of airplanes are stowed at places other than at the naval air stations. From reliable sources information has been obtained which, although not conclusive, indicates that these 300 reserve planes are stowed at the navy yards of Yokosuka and Sasebo.

Below is given an estimate of the types of airplanes in actual service and in stowage in reserve as of May 30, 1925:

| | Active | Reserve |
|--|--------|---------|
| <i>Avros</i> , training types----- | 32 | 129 |
| <i>Mitsubishi No. 1</i> , pursuit type----- | 48 | 22 |
| <i>Mitsubishi No. 2</i> , observation type----- | 28 | 32 |
| <i>Mitsubishi No. 4</i> , torpedo and bombing----- | 8 | 6 |
| <i>Yokosuka</i> , seaplane scouts----- | 21 | 64 |
| <i>Hansa</i> , seaplane scout and light bombing----- | 19 | 21 |
| <i>Viking</i> , amphibian, reconnaissance----- | 4 | 0 |
| <i>Seal</i> , amphibian, reconnaissance----- | 4 | 0 |
| <i>F-5</i> , flying boat, reconnaissance----- | 24 | 6 |
| <i>Rohrbach</i> , seaplane scout----- | 2 | 0 |
| <i>Pintails</i> , amphibian deck landing fire control----- | 3 | 0 |
| Experimental----- | -- | 25 |
| Total----- | 193 | 305 |

The Japanese Navy Department has officially stated that the naval air force consisted of 11 air companies or squadrons for the fiscal year ending March 30, 1925; that all these air companies were located at the naval air stations; that airplanes when needed for fleet use were obtained from the naval air stations; and that the service air companies consisted of 16 airplanes and the training companies of 24 airplanes.

There are believed to be $2\frac{1}{2}$ training companies and $8\frac{1}{2}$ active companies (March 30, 1925), which by organization consists of 60 training planes and 136 active service planes, or a total of 196 active planes by organization. Excluding 25 experimental types from the total of 498 leaves 473, which shows a total of 277 reserve planes, or 70 per cent reserve.

From a reliable source information has been obtained that a branch factory of the Nakajima Airplane Factory is being completed in Tokyo, and that the product of this branch factory will be devoted to manufacture of 450-horsepower Lorraine-Dietrich airplane motors.

(From the Japanese press)

"Junker" planes to be made

The Aichi Clock and Electric Co. is to obtain the rights from Germany to manufacture *Junker* type hydroplanes. This company has heretofore been building *F-5* type hydroplanes, but these machines are too slow and out of date and will therefore not be further manufactured.

Several engineers and mechanics in the employ of the Aichi Co., who were sent to Germany last year, recently returned and are to start work on the new machines early next month, when a *Junker*

machine is due to arrive. The plane is equipped with a 400-horsepower motor and has accommodation for five people.

The Kawasaki Dockyard Co. commenced the manufacture of the *Dornier* metallic machines some time ago. This has given the Aichi concern an impetus to manufacture *Junker* machines.

New dirigible

The dirigible which was ordered by the navy in France was completed the latter part of June, and Lieutenant (Ord.) Tsukahara will be ordered to France to bring it to Japan.

The gas bag of the new dirigible is cylindrical in shape and resembles that of the *S. S.* dirigible which exploded last year with a capacity of 6,000 cubic meters, little more than half the gas capacity of the *Astra* type.

While the *Astra* type is for defense the new dirigible will be used for scouting and fighting purposes, being equipped with two 450 horsepower motors, 2 machine guns, and will carry 14 passengers.

Upon arrival of dirigible she will be assembled at Yokosuka, and when completed, which is expected to be the end of October, will be assigned to the Kasumigaura Air Station.

Two new air routes

The department of communications has decided to establish two important air routes, one between Tokyo and Dairen and the other between Osaka and Shanghai, and the sum of 14,000,000 yen will be asked in the estimates as necessary expenses.

The Tokyo-Dairen air route, in contemplation, starts from Tokyo and goes to Dairen via Osaka, Shimonoseki, Fusan, and Seoul, while the exact places to be traversed by the other projected route—between Osaka and Shanghai—are still left undecided. It will either go direct to Shanghai from Kyushu or make a detour, touching a corner of Chosen in reaching its destination from Kyushu. It is proposed that several provisional landing places should be provided at Hiroshima and other places in case of temporary landing, besides the regular airdromes to be provided at the places of call. Aviation observatories and wireless stations will also be created at Hakone and on Mount Ibuki as well as the airdromes. The whole work is to be spread over five years.

As to the expenses involved in the creation of the route between Shimonoseki and Dairen they will be defrayed out of the colonial

special account, and these will be claimed in the estimates of the colonies concerned for the fiscal year following the approval of the home estimates. So far as that portion of the Osaka-Shanghai route which belongs to foreign territory is concerned, the expenses will have to be met by a semiofficial company to be organized for the purpose. In case the present estimates are approved, the work will quickly be taken in hand, so that the aerial service may be inaugurated from the beginning of the fiscal year 1927-28 if on the completed portion only.

NETHERLANDS

JAPANESE AND BRITISH ACTIVITIES IN DUTCH BORNEO

July, 1925

(Source : Reliable)

The Japanese Navy purchases on an average of 20,000 tons of fuel oil each month from the Royal Dutch Shell in Borneo. This oil is loaded into Japanese Navy tankers at Tarakan, which island is the most important source of production for fuel oil in Netherlands India. The monthly production of the fields in Tarakan is about 85,000 tons so the Japanese purchases amount to about 25 per cent of the production. In 1923, following the destruction of underground tanks in Japan as a result of the earthquake, the Japanese Navy purchased 202,000 tons, in 1924 only 103,000 tons, but during the first five months of 1925, 105,000 tons. It is rumored that the Tarakan production will be reduced to 20,000 tons a month.

It is said that the Japanese have storage facilities for 3,000,000 tons of fuel oil in Japan.

During the recent maneuvers of the Dutch Navy off the east coast of Borneo it is said that plans were consummated for the construction of batteries on the north and south ends of Tarakan and that the work is now in progress. While in Borneo word was received to the effect that a staff officer of the Australian Navy would visit Tarakan in order to "look the ground over."

Numerous efforts have been made by the Japanese to obtain from the Royal Dutch Shell the secret of the manufacture of Tuluol (T. N. T.) from Borneo gasoline, as coal tar and Borneo gasoline are supposed to be the only important sources of this product, the latter having a very high percentage of aromatic hydrocarbons.

All Japanese tankers load at Tarakan and on only one occasion in the past few years have they ever loaded at Balikpapan. People in Borneo who have witnessed the arrival of Japanese tankers say that 700 Japanese sailors are packed into one tanker, and that

judging from the undisguised manner in which they look the ground over, take soundings and photographs, it appears probable that these visits of tankers serve as a course of instruction for the young Japanese sailors.

A short time past during the isolated loading of two Japanese tankers at Balikpapan the large number of Japanese officers were entertained by the officials of the Royal Dutch Shell, and some of the officers evidenced a good knowledge of the Dutch and Malay languages, two even admitting that they had lived for quite a time in Netherlands India. The Dutch were likewise entertained aboard the tankers and one of the men who had been present states that when the Japanese sailors sang their war songs it was an almost "bestial fervor." These tankers remained three days after they had completed loading.

The Dutch are very apprehensive of the Japanese and consider a conflict imminent, so they often give information voluntarily to Americans.

Barracks are being built at Balikpapan to house an increased force of Dutch soldiers.

At the time of the Dutch naval maneuvers off the east coast of Borneo, i. e., in early June, the Dutch authorities went very carefully into the question of fortifying Balikpapan, Sambodja, Sanga Sanga, and Tarakan. Around Balikpapan, sites for batteries were selected in the small valleys between points on the low table-land which is situated from 10 to 150 yards from the seashore. The refineries, paraffine plant, "Dubs" plant, canning plant, and, in fact, all of the buildings, tanks, rigs, etc., of the Balikpapan installation are built along the waterfront for a distance of about 4 miles. The only equipment of importance on the hills which rise above the city are three or four large tanks which have been built for the purpose of storing fuel oil. It is interesting to note that these tanks are all of the same manufacture as the tanks built by the British Admiralty at points along the Mediterranean (Malta), Suez Canal, in India, Straits Settlements, etc. Though Dutch authorities deny that these tanks were built for the British fleet, the fact remains that they are the only ones in Balikpapan built for the storage of fuel oil and are the only ones built by the same manufacturer who has provided the British Admiralty tanks throughout the Far East. The tanks are capable of storing much larger quantities of oil than would be necessary for the small Dutch Navy.

It has been rumored on good authority that the defense of Balikpapan will be assisted by the use of dummy guns equal in number to the real batteries. These guns will be discharged by electricity to baffle any enemy.

Great care has been taken by Dutch naval authorities to select the positions for mines along the coast of Borneo and a large quantity of Vickers mines are said to be in readiness for a hurried planting.

Toward the northern part of Balikpapan along the shore is a high rock promontory which is being prepared presumably for battery construction. Below it is a concrete emplacement built by the British at the time the Shell company operated the petroleum fields and over which the British flag floated from a high flagstaff, the base of which is still to be seen.

In Balikpapan there are a few Japanese who are occupied in trades which the Dutch claim could not possibly provide them with livings; among them are two wood dealers though there is no wood trade to speak of in Balikpapan. They are reported to be very intelligent men. At Sanga Sanga, near Samarinda, quite a number of Japanese were seen, among them a photographer. This photographer was well dressed and appeared to be very intelligent; yet when addressed in the English and Malay languages he pretended to understand neither though he has been in Sanga Sanga for two years or more. It is also interesting to note that this man could not possibly make a living in Sanga Sanga as a photographer. There are a large number of Japanese on the Island of Tarakan.

The great strategic importance of Tarakan as a southern base for the operations of an enemy against the Philippine Islands is evident.

It is unquestionably a fact that Hollanders of position and men well informed believe that the United States could not hold the Philippines against an enemy's attack for more than a fortnight. British naval authorities have told them so, according to information received from very reliable sources. Consequently the Dutch place great reliance upon the English to defend their precious and wealthy possessions and this may in some measure account for the fact that the British (Shell) have been given very large petroleum concessions to the exclusion of American firms.

When one realizes that approximately 50 per cent of the rubber estates in Netherlands India are controlled by the British, that they own vast estates of sisal, fiber, tapioca, kapok, coffee, etc., and hold concessions for coal and other minerals as well as petroleum concessions exclusive of the Royal Dutch Shell, and in addition realizes the dependence of the Dutch upon the British from a military point of view, it will not appear strange that the English influence in these colonies is very great indeed.

When asked about the future of the Dutch East Indies an Anglo American who has resided in eastern Java a great many years replied in substance as follows: "They will eventually revert to the British,

for Holland is having a great deal of trouble with radicalism and will be compelled to call upon Great Britain for assistance."

An instance of the powerful influence of Great Britain in Netherlands India is graphically shown in the present hold-up scheme known to the world as "rubber restriction." Two years ago the British papers in this part of the world were bitter in their denunciation of the Dutch for failing to join the restriction scheme to force the United States as principal user to pay exorbitant prices. A special British delegation came to Java early in 1924 to discuss matters with the Dutch, and as a result of this meeting it was decided that the exports of native rubber were responsible for the failure of the restriction scheme. A short time past the Dutch levied a heavy tax on native rubber, so our English friends are now fairly satisfied for the price has gone so high as to cause alarm in the United States. English exporters claim that the price will soon reach 5 shillings a pound.

Our Dutch friends may eventually realize that there is safety in numbers and that the apparent unimportance of the United States from a protective standpoint is not to be scoffed at. They believe, and justifiably so, that Borneo holds the future world supply of petroleum. The concessions of the Shell in Borneo have scarcely been touched notwithstanding the fact that false rumors are circulated to the effect that they will soon be exhausted. American drillers in Borneo claim they have never seen such wonderful fields; the supply seems unlimited and the drilling is attended by few difficulties as compared with American fields.

RUSSIA

NAVAL NOTES

July, 1925

(Source: Fairly reliable)

Condition of Navy

All repairs in the fortified section of Cronstadt are completed and the chief points of defense have been restored. The 16-inch battery of Krassnaia Gorka is in perfect order. The following forts of the Cronstadt fortress have been restored and some of them furnished with new armaments: Fort Zinovieff (formerly Riff), Fort Awroff (formerly Ustje), Fort Roshal (formerly Constantine), and Fort Bukharin (formerly Peredowoi).

Having been equipped with new guns the fortress is now able to offer resistance to any navy, including guns of the highest caliber.

The 16-inch battery in the eastern section of Fort Krassnaia Gorka is masked. The guns of this long-distance battery can not be tested because the projectiles would fall upon Finnish territory.

The squadron torpedo-boat *Strogij* has been renamed the *Marty*, in commemoration of the visit of the French communist Marty to the Baltic Fleet. Kusskow, member of the revolutionary war soviet of the Baltic Fleet, has been appointed commissar of the fleet which is at present detained at Biserta by the French Government. The crew which is detailed for the manning of these ships has been reduced to the extreme minimum, indispensable for the conveyance of these ships from Biserta to Russian ports.

The situation of the Baltic Fleet during the winter was the following: The lineships *Marat* and *Paris Commune* lay in Cronstadt, the first near the outside mole and the second near the floating dock. No repairs have as yet been begun on the *Paris Commune*, because this ship is in such bad condition, but it is doubtful whether the results would repay the high cost of repairs. An official inspection of all the ships of the Baltic Fleet will be made at the return of Engineer Petrow, in order to determine how far they are fit for a campaign and what repairs are needed. The cruiser *S. S. S. R.* is lying in Leningrad near the French-Russian Works; it will shortly return to Cronstadt. The cruiser *Rurik* lies near the Admiralty Works in Leningrad, her artillery having been removed and all repairs suspended. The engines were to be repaired in the autumn of 1924, but they had not been begun in March, 1925. It is, therefore, supposed that this cruiser will not be put under repair.

All three divisions of squadron torpedo boats are at Cronstadt with the exception of the *Stalin* and *Lenin* and three coal ships that have gone to Leningrad for repairs. According to the budget estimate, they ought all to be submitted to inspection in the course of the winter. Small current repairs have been made. The small torpedo boats are in a very bad condition and are under repair in Leningrad and Cronstadt. It is very probable that a number of these torpedo boats will have to be put out of commission, being completely worthless.

The submarines *Kommunar*, *Kommissar*, *Batrak*, and *Krassnoarmejez* are being repaired at Cronstadt and will be ready before the close of navigation. The remaining submarines are in Leningrad, pending their repair in the Poutilow shipyard. Another Leningrad shipyard will probably be able to undertake part of the repairs. The fleet cutters are partly at anchor in Cronstadt, partly under repair in the Solotareff shipyard in Leningrad. All the smaller ship units are put in harbor in Cronstadt, this measure having been inspired by the dissatisfaction of the sailors, two-thirds of which are antagonistic to the Central Committee of the Party. In prevention

of any contact between the sailors and the equally dissatisfied Leningrad working classes, the fleet has been kept in Cronstadt, and the sailors hardly ever obtain leave to go to Leningrad.

The Fleet Commissar Osloing came to Leningrad in the last days of December in order to inspect the corps of former imperial officers, with the object of effecting a "cleaning-out." However, there is no reason to expect a wholesale dismissal of these former czaristic elements because they have now become perfectly loyal to the Soviet Government; another reason being that the training of the Red Officers' Corps is qualified as unsatisfactory by the communistic commissions themselves.

The new torpedo boats *Marx*, *Isjaslaw*, *Prjems W*, and *Pamjat Trekh Ismennikow* ("In Memory of the Three Traitors") have been laid up for the winter in Cronstadt. Their repairs have been suspended.

The Caspian fleet has practically ceased to exist; all the small torpedo boats, which of late were hardly able to move along, have been moved into the reserve, being completely worthless. They are intended as material for repairs. The gunboats are going to be put under repair, but at present they are only being mended and patched up. The torpedo boats of the *Emir Bukharski* type are going to be sold for scrap. All that remains of the Caspian fleet are two gunboats and six steam launches that were equipped with field guns during the civil war.

Under the energetic command and leadership of Commander in Chief Soff the usual winter repair work on the vessels of the Russian Fleet had already been finished by April 16. The personnel took an active part in this work and it is stated that the ships are now in a better condition than in 1924. The fleet left comparatively early for the regular target practice in the Gulf of Finland, the vessels taking part consisting of 2 line ships, 2 cruisers, 12 Nowik boats, 10 mine boats, 12 submarines, and 10 seaplanes.

Owing to the large supply of fuel on hand, the summer fleet maneuvers can last until well into September. The cruise will extend as far as Gotland. An extensive maneuver has been planned in which fleet, coast defenses, and the Red Army will participate. It is expected that in spite of difficulties in connection with personnel and material the summer activities will represent a further advance in training. Soff has several officers of the former navy on his staff. Former imperialistic officers are also engaged as instructors in the naval schools. It is also reported that some naval officers now living abroad have been offered positions as instructors.

The influence and interest of the commanders and officers has increased since the activities and authority of the political commissars has begun to be restricted in the navy.

Secret communistic organizations in various navies

A very interesting article is published by a certain P. Lukashevitch in No. 109 of the Bolshevist military paper, Red Star, giving plain evidence of the great expectations cherished by the Soviet Government and the Communistic Party (the two being practically identical) in regard to the revolutionary movement among the sailors in the navies of the various countries. The article is entitled "The Mine" and includes the following sentence: "The sailor of the imperialistic navy is the mine which will sooner or later blow up these fleets."

The author counts up the English, American, Japanese, and French naval contingents and points out the insignificant number of officers as compared with that of the crews. The personnel of the British Navy numbers 99,968 men and 8,571 officers; that of the American Navy, 86,000 men and 7,873 officers; Japan has 58,000 men and 7,550 officers, and France 55,740 men and 3,914 officers.

The article goes on to prove that the sailors of the imperialistic navy are downtrodden and that they hate their officers and their governments no less than did the sailors of the former Czaristic fleet. Naval technic has become closely connected with industrial labor and has brought the sailor into intimate contact with the working proletariat. The most advanced revolutionary elements among the sailors of the imperialistic navies are forming themselves into groups which will serve as a nucleus around which the great mass of the sailors will gradually collect. Alluding to the mutiny on the Brazilian armored ship *San Paolo*, the author says that it bears a very close resemblance to the historical mutiny of the Russian *Potemkin*. He says, further, that the commander in chief of the British Navy informed the Admiralty a few weeks ago of the existence of an active Bolshevist propaganda in the navy, against which it was necessary to take the most energetic measures. The author goes on to say:

We have been informed that the sailors of the French Navy issue a secret illegal paper, which is the organ of their leading revolutionary group and which is thoroughly imbued with the principles of communism and Leninism. The sporadic mutinies on ships belonging to the French and other navies, the refusal of the French sailors to bombard our coasts during the civil war, and numerous other facts are sufficient proof of the existence and growth of a revolutionary movement in the imperialistic navies. Revolutionary sparks are

alight, and there is no doubt that the next war, which must inevitably break out sooner or later between the imperialistic states, will have the effect of intensifying and consolidating the revolutionary movement. It will aggravate the antagonism between the sailor masses and the privileged officers' caste and will hasten the inevitable coming of the day of wrath and revenge. The sailor of the imperialistic navies is the mine which will sooner or later blow up those fleets.

SWEDEN

NAVAL NOTES

August, 1925

For the first time since 1913 extensive fleet maneuvers will be held in the presence of the King from August 10 to 17. The boats of the volunteer motor-boat corps will also take part in these maneuvers.

In the annual report of the commander of the coastal fleet the necessity of equipping the vessels of the *Sverige* class with airplanes was emphasized.

The Reichstag passed the Government's defense proposal on May 25, 1925. No important changes were made in the original draft. The number of naval officers is to be reduced from 354 to 301; the engineer corps from 55 to 45; the medical corps from 47 to 34; non-commissioned officers from 2,625 to 1,835; cadets from 600 to 450. The period of service is to be reduced from 255 days to 200 days. A new building program is not to be presented until 1927. From this time on 7,000,000 kroner annually will be required for new constructions. The old armored coastal ships will not be replaced for the present. Between now and 1927 the only additions to the fleet will be the constructions included in the 1924 building program; i. e., two destroyers, two submarines, and two motor torpedo boats.

The question of the removal of the mines in the Baltic has recently come to the fore again as a result of the sinking of the Swedish schooner *Hans* off the coast of Gotland. In a communication to the association of Swedish navigators (according to newspaper reports) the Swedish Minister of War draws attention to the measures that have been taken since the mine-sweeping conference in Stockholm in 1919 and through which all the mine fields laid in the Baltic during the war have been removed as far as possible. According to reports from the Swedish Hydrographic Department, the only mines left in waters adjacent to Sweden are in the Gulf of Finland. The Russian authorities have taken steps to remove these latter. In order to remove the mine danger in the Baltic,

some arrangements should be made for the regular cleaning of the waters, and this should be looked into thoroughly by the countries which laid the mines and are therefore cognizant of their location. In so far as regards the floating mines in Swedish navigable waters, the Swedish naval authorities will continue to do everything in conformity with existing instructions necessary to render these mines harmless. However, it should not be forgotten that it is very difficult to find such mines when their positions are not definitely known or there is any delay in reporting their discovery.

URUGUAY

POLITICAL NOTE

August, 1925

(From the Uruguay Press)

Presence of professional Soviet agitators in Montevideo

The following is an extract from the Review of the River Plate:

The arrival at Montevideo some weeks ago of the Soviet steamer *Vazlav Vorovski* aroused a good deal of curiosity on both sides of the River Plate. It was believed at one time that she would come on to Buenos Aires to complete her cargo, but this did not happen, the vessel having left Montevideo on her homeward trip a few days ago. Now comes a rumor from Montevideo that 15 of the crew of the Soviet steamer have remained behind in the Uruguayan capital. These 15 men are said to be professional agitators, and they are credited with the intention to promote disorders in Brazil, Uruguay, and Argentina. The Montevideo police up to the time of writing had been unsuccessful in their efforts to locate these undesirable characters.



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME VIII—NUMBER 4

OCTOBER, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines



WASHINGTON
GOVERNMENT PRINTING OFFICE
1925

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

VOL. VIII, NO. 3—SEPTEMBER, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

CONTENTS

| | |
|---|------|
| BOLIVIA : | Page |
| Combat estimate..... | 1 |
| CHILE : | |
| Political estimate..... | 10 |
| Combat estimate..... | 23 |
| CHINA : | |
| Political notes..... | 29 |
| GREAT BRITAIN : | |
| Naval aviation..... | 37 |
| Reorganization of Colonial Office..... | 40 |
| Miscellaneous notes..... | 44 |
| GREECE : | |
| Reconstruction of destroyers..... | 52 |
| ITALY : | |
| Miscellaneous notes..... | 52 |
| JAPAN : | |
| Naval aviation..... | 64 |
| Army aviation and antiaircraft artillery..... | 71 |
| Squadron in China to be strengthened..... | 78 |
| NETHERLANDS : | |
| Notes on cruiser Sumatra..... | 78 |
| PERU : | |
| Combat estimate..... | 80 |
| Miscellaneous notes..... | 87 |
| RUMANIA : | |
| Miscellaneous notes..... | 89 |
| RUSSIA : | |
| Visit of men-of-war to Bergen..... | 90 |
| Military activities..... | 91 |
| SWEDEN : | |
| Note on Goteborg fortifications..... | 91 |
| SPAIN : | |
| Present naval establishment..... | 92 |
| TURKEY : | |
| Fortifications—Gulf of Ismid..... | 94 |
| UNITED STATES : | |
| Aviation..... | 95 |
| Visit of Colombian hydroplanes to Canal Zone..... | 103 |

NOTICE.—The supply is exhausted of SUPPLEMENT NO. 2, "The Navy and the Coast Guard in the World Flight," which was issued with the July, 1925, BULLETIN.

As requests are still being received for copies of this pamphlet, it is requested that officers having a copy and who do not wish to retain it for future reference return same to the Office of Naval Intelligence after it has served its purpose.

This supplement is marked "For official use only" and may be mailed unregistered.

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. VIII

OCTOBER, 1925

No. 4

(In connection with the presence of the Plebiscitary Commission in the matter of the Tacna-Arica arbitration, under General Pershing, and the Special Boundary Commission, under General Morrow, in South America at the present time, political and combat notes on Bolivia, Chile, and Peru, prepared by M. I. D., U. S. Army, are published in this issue.)

BOLIVIA

COMBAT ESTIMATE

May, 1925

I. MILITARY

1. STRENGTH

| | Present strength | Trained reserves | Military man power |
|---|------------------|------------------|--------------------|
| Regular army..... | 7,300 | | 7,300 |
| First Line Reserves (ordinary)..... | | 11,000 | 11,000 |
| Second Line Reserves (extraordinary)..... | | 19,000 | 19,000 |
| Untrained reserves..... | | | 80,000 |
| Total..... | | | 117,300 |

The drastic reductions in the army of Bolivia, which were planned some two years ago, have not yet been put into effect. The Bolivian Army has at present an authorized strength of 7,300 men, and the contingent of conscripts which reported for duty on the 1st of January, 1925, was sufficient to bring it up to its authorized strength.

2. ORGANIZATION

a. *The War Department.*—The Ministry of War is divided into five sections and is responsible to the President for administering the army. The ministry is advised and assisted by the general staff, which is also divided into five sections. In reality General Kundt, the present chief of staff, is in absolute authority over the army.

For territorial administration, the country is divided into six military zones, and each zone commander is responsible for the zone he commands.

b. *Combat arms.*—*The infantry* consists of six regiments and some small detachments. The regular regiments have two battalions each. Each battalion consists of three rifle companies and one machine gun company. A rifle company consists of three sections, of 1 officer and 31 men each, with a total authorized strength of 4 officers and 95 men, and a machine-gun company has an authorized strength of 3 officers and 53 men. Each machine-gun company is divided into two sections of two pieces each, with an additional section for ammunition. The authorized strength of an infantry regiment is 42 officers and 678 men. The total authorized strength of infantry in the Bolivian Army is 264 officers and 4,363 men.

The six infantry regiments are organized, on paper, into three brigades for internal emergencies not requiring expansion in strength. It is not believed that this organization is practical or that it will ever be actually employed in the field.

The cavalry consists of two regiments, each divided into three squadrons (troops) of four sections each. Total authorized strength of the cavalry, 48 officers and 910 men.

The artillery consists of two regiments, one field and one mountain. The mountain artillery regiment has two groups of two batteries each, and each battery has two sections of two pieces each. There are also two ammunition sections (32 rounds) to each battery. The field artillery regiment has one group of two batteries, and each battery has two sections of two pieces each. The total authorized strength of the artillery is 44 officers and 558 men.

The engineers consist of one battalion of two companies (railway and telegraph). Total authorized strength, 9 officers and 190 men.

The air service, organized in 1923, which has a school on the altiplano above La Paz, consists at present of 8 officers, 1 enlisted man, and 8 civilian students.

c. *Auxiliary services.*—*The medical department*, organized in 1916, furnishes a regimental surgeon to each regiment and conducts three hospitals.

The quartermaster general's department has assigned to it one battalion of "cascadores," or scouts, of four companies, and a battalion of two companies of "resguardos" or guard troops.

The ordnance department consists of 11 officers and 24 men.

The Bolivian Army has no signal corps. There is provided a specially instructed signal group under an officer in each regiment.

d. *Recruitment.*—Military service in Bolivia is by conscription, which is approved by the masses. It is not evaded, and, in fact, more conscripts report for duty than are called or than can be accepted. The period of active service is for two years, from the age of 19 to the age of 21. Very few soldiers have had over two

years' service. Reenlistments are not encouraged, because of a desire to train as many men as possible.

3. EQUIPMENT

The artillery is armed with 72 Schneider-Canet guns 75 mm., model 1904 and 1910. The army is well supplied with Maxim machine guns. These guns were made by Krupp, and have been specially modified for use in the high altitudes. They function perfectly at an altitude of 14,000 feet. The infantry is armed with the Mauser rifle, model 1898-1909 ("Bolivian model"), cal. 7 mm. The cavalry and mountain artillery are armed with the Mauser carbine, 1898-1909 ("Bolivian model"), cal. 7 mm. There are about 40,000 rifles, divided equally between the 1898 and the 1909 models. There are also about 3,000 Mannlicher, and about 10,000 Remington Sharp and miscellaneous makes. The old reserve of clothing is about exhausted and new uniforms have recently been purchased from Germany. The greatest number of troops which can be put in the field equipped is approximately 50,000 men.

The air service equipment consists of 6 planes, 4 of which are 130 h. p. Moranes, specially constructed for the high altitude, and the other 2 are "Pinginos" for ground instruction only.

The signal corps equipment consists of one powerful wireless station, located at Viacha.

There is no transportation equipment.

Bolivia has no facilities for the manufacture of munitions.

4. MOBILIZATION

In time of war it is planned to double the peace organization and to form and put into the field three divisions. The actual composition of these divisions is uncertain, depending on the location of the theater of operations and distribution of troops at the time.

Bolivia has a population of about 2,800,000. It is made up very largely of Indians and Mestizos. The percentage of white is small. Either the Aymara or the Quechua Indian, properly trained, makes an excellent soldier. With marvelous eyesight and ability to trot all day long, day after day, at altitudes of 14,000 feet, he only has to be taught discipline and marksmanship to be of positive military value. Knowledge of Spanish is beneficial, but not essential. The officers are required to be able to speak both Aymara and Quechua.

The military record of every male of conscription age is kept and the man listed in the military register. At the age of 19 a man is required to report to the "mayor de plaza" of the department. Then the law provides for a selection, by lottery, of those who will be required to serve in the army. Those who report annually and

request to be allowed to serve exceed the authorized strength for which the annual budget provides. Therefore the drawing by lottery to enforce the conscription never has to be resorted to. The classes subject to conscription are:

For the standing army, 19 to 25, inclusive.

For the reserves, 26 to 32, inclusive.

For the extraordinary reserve, 33 to 40, inclusive.

For the territorial guard, 41 to 50, inclusive.

5. DISTRIBUTION OF FORCES

By a decree dated December 24, 1918, Bolivia was divided into six military zones, comprising the following departments and with headquarters as follows:

The northern zone.—The Department of La Paz, with headquarters in La Paz. (About one-half of the present strength of the army is stationed in this zone.)

The central zone, comprising the Departments of Oruro and Cochabamba, with headquarters in Oruro. Garrisons consist of two regiments, 1 battalion, and a detachment.

The southern zone, comprising the Departments of Chuquisaca and Potosí, with headquarters in Sucre. Troops consist of one infantry regiment stationed in Sucre.

The military command of the northwestern frontier, comprising the Department of El Beni and the Territory of Colonias, with headquarters in Riberalta. Troops consist of one infantry regiment.

The military command of the eastern frontier, comprising the Department of Santa Cruz and the Territory of El Oriente, with headquarters in Santa Cruz. Troops consist of one infantry regiment.

The military command of the southeastern frontier, comprising the Department of Tarija and the Gran Chaco, with headquarters in Villa Montes. Troops consist of five detachments of infantry.

In the assignment and distribution of conscripts the following considerations govern whenever practicable: Home environment and occupation as affecting adaptability to the various arms; for example, cavalry recruits are drawn largely from the Department of Cochabamba, where a knowledge of riding is common to all the people. Distribution to regiments is made with a view of removal as far as possible from home localities.

6. EFFICIENCY AND MORALE

a. *Training.*—The German system of training is followed, with good results. General Kündt is concentrating, in the two years' training given, to educating the soldier to speak Spanish, to be accustomed to better sanitary conditions, to straighten up the bodies

bent by generations of burden-bearing, and to cure the coca habit by cutting off the supply of that drug. Potentially, at least, the Bolivian Indian is an excellent soldier. They learn quickly, and progress is easily discernible. With the more complicated training, such as the duties of the different members of a machine-gun squad, the soldier learns to recite the description of the movements, and much of the preliminary training is done very slowly, while each man, as he moves, repeats this description out loud. The command for this form of drill is preceded by the words "Individually explained."

Reenlistment is not encouraged, as General Kundt desires to extend the two years' training to as large number as possible. Experience has shown that men with previous experience in the army will immediately rejoin any military force passing in the vicinity of their homes when there is trouble and disorder to suppress.

b. *Discipline and morale*.—Discipline is excellent. Each organization has not only its numerical designation, but an appeal is made to patriotism by giving it an historical name in addition, such as calling the Second Artillery the "Bolivar" regiment. Discipline is enforced by prescribed regulations, which are reasonable and just. Troops are proud of their organization and take an interest in their training. The sentiment of both officers and men is excellent. The barracks are kept in admirably sanitary condition, as compared with the conditions generally existing in Bolivia. The food is plain, but plentiful, well cooked, and well seasoned. This plentiful supply of good food is a great help in enforcing the prohibition against the use of coca by the soldiers, which has been put into effect by General Kundt and which is apparently beneficial.

7. *Theory of combat.*

The present development of the Bolivian Army has not been made with a view to carrying on a successful war against an external enemy, but rather for the perfection of a force for keeping down banditry and internal disorders and for combating revolutionary movements. The fact that Bolivia was recently under a state of martial law for two years, and the two recent revolutionary movements in Yacuiba and Santa Cruz, show clearly the Government's main need for an army.

While there is a "paper" organization into brigades and a war-plan organization into divisions, the character of the terrain on any frontier where trouble might reasonably occur is such as to make impracticable the employment of large organizations. Guerrilla war would eventually be a certainty.

Peru is not now a likely foe, and will not be as long as the Government Republic Party remains in power in Bolivia. Skirmishes

of troops and crossing and recrossings of troops into foreign territory are reported frequently from the Gran Chaco and the Paraguayan border. These reports are partly due to rumors arising in both countries and partly to actual ignorance of the boundary line, or the location of the line of the status quo, which the two countries have agreed to observe pending attempts at a boundary solution. While the Bolivian Indian is the only person in the world who could possibly endure the hardships of the altitude plus the shortage of food and water, even these Indians could not reach the Paraguayan boundary in any large numbers, because there is a limit to the number of men and animals which the scant forage will support. Warfare in the Gran Chaco would be entirely guerrilla in type.

II. NAVAL

Bolivia has no navy.

III. GEOGRAPHIC

S. IMPORTANT GEOGRAPHIC CONSIDERATIONS

Bolivia ranks with South American countries in size after Brazil and Argentina. Its frontiers measure 3,700 miles. The Andes form a barrier on the west from Chile and Peru. The great high plateau formed by the branching of the Andes in northwestern Bolivia sweeps west to east, south, and then southwest, joining the Andes in southwestern Bolivia. This high plateau covers about one-third of Bolivia. Its height averages about 14,000 feet. It is cold, barren, and severe, and unless an invading army were accustomed to high altitude it could not exist on account of "sorroche." The Beni and Madre de Dios Rivers, in the north, are ascended with difficulty, and the Pilcomayo (Argentine frontier) can not be ascended from the Paraguay River.

The Gran Chaco and the eastern plains in the department of Santa Cruz extend for several hundred miles into the interior, and the Gran Chaco in the southeast adjoins Paraguay. The tropical plains in the east adjoin Brazil. Both of these are formidable, and in rainy season they are impassable on account of the sand and intense heat. The Paraguay River, on the Paraguayan frontier, and the Madera and Cuapore Rivers, on the northern Brazilian frontier, constitute formidable barriers against an invader.

Supplies could not be maintained, as nothing is produced on the high interior plateau (about 14,000 feet). Only a limited supply of food is obtained from the Yungus and Cochabamba. Sugar and potatoes are imported from Argentina and Peru.

During the rainy seasons from about November to April it would be most difficult to conduct any form of military operations. On the high plateau the nights are cold, and here, as well as on the low

plains, the soil is quickly converted into mud and mire. Invading troops not accustomed to the variable and severe climate of Bolivia would soon be exhausted.

There are 12,000 miles of navigable rivers which have steamboat service into the Rio Paraguay with outlet via Asuncion, Rosario, and Buenos Aires, and via Rio Madera and the Amazon to Brazil and northern Peru.

Railways connect La Paz with the principal industrial cities of the Bolivian table-lands and port cities of the Pacific. By May 1, 1925, it is expected that the Atocha-Villazon Railway will be completed, giving direct rail connection from La Paz to Buenos Aires.

IV. CONCLUSIONS

Conditions in the army are good and are improving steadily. The Aymara and Quechua Indians, who fill the ranks of the army, are docile and easily trained. A very small percentage are able to speak Spanish when they join the colors. The officers have the pride of their country at heart. Professional ethics are good. The officers are graduates of the National Military Academy or of some foreign military college. Trouble makers, or those whose sympathies were too strongly with the Liberal Party, have been gotten rid of.

It is quite possible that the army is at present too much built up around its loyalty to General Kundt, the chief of staff. General Kundt is loyal to the administration, and because of the absolute loyalty of the army to him he is the real pillar upon which rests the stability of the Saavedra government. General Kundt is becoming old and is not in good health. If he decides to retire and visit his family in Germany, the army will suffer noticeably from his loss.

Recent revolutionary movements have been successfully, if expensively, put down. The Indian uprisings have become very infrequent under the rule of Saavedra, who is himself part Aymara.

The boundary questions with Peru, Brazil, and Argentina are settled and the boundary with Chile agreed upon and surveyed, except that Bolivia still cherishes the hope of some day obtaining a seacoast or some revision of her treaty with Chile of 1904. She is as interested in the Tacna-Arica award as either Peru or Chile. She is still in dispute with Paraguay over the ownership of the Gran Chaco, a question of special importance since the Standard Oil Co. began to find oil at Bermejo, in the Department of Tarija, and began drilling in other parts of southeastern Bolivia.

Bolivia has announced her intention not to become a militaristic nation; it is her expressed intention to maintain only a sufficient standing armed force to quell internal disorders, but that, if invaded by an enemy, she will contest to the last man.

Conditions in general are favorable. Labor conditions have improved, and laws have been passed for the protection of the laboring classes. The administration has encouraged investment by foreigners in the mineral industries of the country and has dealt fairly with such investors. This policy promises to continue under the new administration which was recently elected to succeed the Saavedra régime.

The Paraguay boundary question is the most likely element of trouble in the future. Fortunately, the very territory over which the dispute arises is so difficult that neither nation could invade the other with any large force.

Bolivia is planning nothing in the way of increased armament, except that she does hope to obtain more aviation equipment and establish her aviation arm on a basis that will insure efficient support in case of emergency.

Estimate of the psychologic situation

March, 1921

PRESENT SITUATION

Considerable agitation has been aroused due to the dissension between political parties. The question of a port on the Pacific is absorbing the interest of the Bolivians at the present time.

FUTURE SITUATION

The present psychologic condition will in all probability remain for some time.

RACIAL TRAITS

Bolivia is one of the most backward countries of Latin America. Only a small percentage of her people are literate, as the great majority are pure-blooded Indians just passing from the nomadic into the agricultural stage of civilization. The only religion is the Catholic. There are four racial divisions, namely:

(1) *Indians*.—These comprise four-fifths of the population. They have no national consciousness and, being descended from slaves, have not outgrown their servility. They have marvelous qualities of strength and endurance.

(2) *Whites*.—Mainly Spaniards, with the remainder composed of Germans, French, Americans, and Portuguese. The Spanish are the only active group and constitute the land-holding, the governing class. They value exceedingly their racial traditions and show no sign of becoming amalgamated with the Indians.

(3) *Negroes*.—There are only a few of these and mainly importations from the Chilean coast. They are intermarrying with the Indians.

(4) *Creoles, or half-breeds*.—These are of all shades of color, but their Indian blood forms a very tenacious and dominant element. They are slightly educated and have a political consciousness of a sort, being ready for any kind of a change.

ATTITUDE TOWARD OTHER PEOPLE

United States.—The Government is exceedingly friendly to the United States.

Chile.—Controversy over the Tacna-Arica question has tended to produce a feeling of contempt toward Chile.

Peru.—She maintains an especially friendly attitude toward Peru.

Recent events

As a result of the national elections held May 2, 1925, Doctor Villanueva became President elect of Bolivia. The presidential candidacy of Villanueva was indorsed and strongly supported by Saavedra, head of the Republican Party and retiring Chief Executive. The evidence is strongly presumptive that the support of Villanueva by Saavedra was predicated on a continuance by his successor of the Republican governmental policies then consistently adhered to, especially in respect to the acquisition of an outlet on the Pacific with territorial dominion thereover.

The question of a Bolivian outlet to the sea has been a live political issue for many years, and, since the opening of negotiations looking to the settlement of the Tacna-Arica dispute between Chile and Peru, the restoration of Bolivia to a position of coast domain, which was lost to her as a result of her participation in the War of the Pacific as an ally of Peru against Chile, has become the primary international question on the political agenda of the Government.

The two great political parties of Bolivia are in accord as to the inherent right of the country to an outlet on the Pacific, but their decisions as to the method and procedure directed toward the attainment of this end have been in serious opposition. The Liberal plan of procedure aims at the establishment of close accord with Chile and sympathy with a Bolivian project for the acquisition of the port of Arica, contingent upon the plebiscite decision in that region. The plan of the Republicans, in substance, appears to be the establishment of an accord with Peru with a view to gaining at least her moral support of Bolivia's demand upon Chile for the restoration of the old Bolivian port of Antofagasta through a revision of the treaty

agreements (1904) by which the Bolivian territory, including this port was ceded to Chile. In connection with the aims of the Republicans, Chile has consistently refused to consider any overtures in respect to revision of the 1904 treaty, but, on the other hand, has conceded the right of Bolivia to raise the question of the restoration of coast domain and has from time to time indicated a favorable attitude toward considering this question through direct negotiations between the two Governments.

Under Saavedra's régime the Republican idea of procedure on the port question has been followed almost exclusively. The Liberals, deprived of any position or voice in governmental affairs, have been unable to develop any practical opposition. Therefore, when President-elect Villanueva, on the eve of his anticipated inauguration, announced the selection of influential Liberals for the portfolios of Foreign Affairs and Treasury in his cabinet, the political storm created thereby was but a natural consequence. This announcement on the part of the President elect whereby the Liberal Party was to be given a voice in the establishment of governmental policies, including the port question, resulted in congressional action on September 1 by which the national elections of last May were rendered null and void and the office of the Chief Executive was transferred from the retiring President, Saavedra, to the president of the Senate pending a new election. This action of the Congress is believed to have been inspired and strongly influenced by President Saavedra in the interest of maintaining his leadership and control over the new administration.

The contemplated decision of President-elect Villanueva, involving the breaking away from the domination of Saavedra and the inclusion of Liberals as his chief advisers on foreign affairs and finance, points to the existence of serious dissension within the Republican ranks. The significance of this condition of discord within the Government party lies in the effects it may have on the international situation with Chile and Peru, especially in respect to the plebiscite activities now in progress in Tacna-Arica.

CHILE

POLITICAL ESTIMATE

July, 1925

1. GOVERNMENTAL ORGANIZATION AND METHOD OF OPERATION

a. Form of government; extent of suffrage.—Chile is a Republic. The basic law is a written constitution, adopted May 25, 1833, still in force, though repeatedly amended. Suffrage is limited to mar-

ried male citizens over 21 and unmarried ones over 25; they must know how to read and write and be possessed of landed or movable property.

b. Organization of Government.—

(1) THE GENERAL GOVERNMENT

(a) *Branches.*—The constitution provides that the Government shall consist of the legislative, executive, and judicial branches. (At the present time the legislative branch is not functioning, the last Congress having been dissolved by the Government junta on September 11, 1924.)

Legislative power rests in the National Congress, composed of a Senate and a Chamber of Deputies. Senators are elected as representatives of Provinces by direct cumulative vote for a period of six years. There is one senator for every three deputies, and one-third of the Senate is renewed every three years. Senators must be not less than 36 years of age and have a fixed income. Deputies are elected by direct cumulative vote by the departments and sit for three years. There is a deputy for every 30,000 inhabitants or fraction of that number not falling below 15,000. Deputies must be not less than 25 years of age, and, like the senators, they must be possessed of a fixed income and also serve without salary.

Executive.—The President of the Republic, who must be a native Chilean of not less than 30 years of age, is chief of the executive branch. He is elected by representatives, who are themselves sent to a special congress for the purpose, by direct vote of the whole electorate. He holds office for a period of five years and can not serve two successive terms. Moreover, he must not leave the country either during his term of office or for one year after its termination without sanction of Congress. The President receives the quite moderate salary of \$15,000 per annum. He is assisted by a council of state consisting of 11 members, 5 of whom he appoints, the other 6 being appointed by the Senate. During the recess of Congress a body of 14 members of the Senate and Chamber of Deputies sits as a supervising and advisory committee. (There is no council of state at present, the council of ministers having taken over the functions of that body.)

The council of ministers consists of the holders of the following portfolios: Interior, Foreign Affairs, Justice and Public Instruction, War, Marine, Treasury, Public Works and Roads, Public Health and Social Welfare, Agriculture, Industry and Colonization. In the event of the President's death or resignation the Minister of the Interior becomes Vice President and Chief of the Executive.

Judiciary.—The judicial administration comprises a supreme court of justice, courts of appeal, courts of first instance, courts of justice and peace, and courts of the *alcaldes* and higher police officers. The supreme court of justice, with seven members, sits in Santiago. The six courts of appeal sit in Santiago, Tacna, Valparaiso, Serena, Talca, and Concepcion. The tribunals of first instance sit in the capitals of the departments. The executive is represented in each department by a public prosecutor, who initiates criminal and civil prosecutions and is an officer dependent on the Ministries of Justice and of the Interior.

(b) *Powers of branches.*—In general, the powers of Congress are to raise revenue and to approve or reject the report of public expenditures; to pass upon the resignation of a President; to decide when a special presidential election is necessary; to impose, repeal, and collect taxes; to fix the yearly budget; to contract national loans and to provide for their payment; to create the political and administrative subdivisions of the country; to establish ports and customhouses, fix weights and measures, control the currency, and determine customs duties; to create or abolish new public offices and to fix the salaries of public employees; to grant pensions, honors, and allowances; to name the place the Government shall reside and Congress shall sit. The Congress has control of rules and regulations as to restraining personal liberty, liberty of the press, public assemblage, and censorship. Such laws can be passed only in an emergency involving the defense of the State and the preservation of the constitution and of peace. Such laws can not be for a duration of over one year. Congressional action is necessary to permit the passage of foreign troops into or through the State, to permit troops in the halls of Congress, or to permit troops to leave the confines of the State; and when permission is given for armed expeditions beyond the confines of the State the permitted period of absence must be stated. Congress fixes the yearly strength of the military and naval forces. All other matters as to the organization, upkeep, and employment of the military and naval forces are handled as ordinary legislation.

In particular it rests with the Senate to judge the election and qualifications of its own members and to fix its methods of procedure; to try impeachments brought in the Chamber of Deputies; to confirm the nominations to public office made by the President; to originate all amnesty and pardon laws; exclusive exercise of the pardoning with regard to individuals impeached by that body.

With the Chamber of Deputies rests the power to judge the election and qualifications of its own members and to fix its methods of procedure; to impeach, before the Senate, ministers and councilors of state, officers of the army or navy for having compromised the

safety or honor of the State, intendentes of Provinces, members of the superior judiciary; to originate all laws for the raising of public revenues.

With the Executive reposes the responsibilities and powers incident to the authentication and promulgation of all laws; the issuance of decrees and instructions necessary to execute the laws; the power to continue Congress in session for 50 days beyond the regular session, and to call special sessions of Congress with the consent of the council of state; the appointment and removal of ministers of state and the five councilors of state he controls, also ambassadors, ministers, consuls, intendentes, and governors; the appointment of judges to the superior courts and officers of the army and navy of rank of colonel or captain and above; the granting of individual pardons with the consent of the council of state, except persons impeached by the Senate.

With respect to the declaration and conduct of war, the President organizes, disposes of, and distributes the land and naval forces as exigencies demand. He is *ex officio* commander in chief. He declares war, with the approval of Congress; grants letters of marque and reprisal; can not personally command forces in the field without the consent of the Senate. The President can declare martial law for a definite time in any point of the Republic threatened with danger of foreign invasion, but must have the consent of the council of state for such declaration. In case of revolution the attribute of declaring martial law belongs to Congress if in session, otherwise to the President with the advice of the council of state.

With respect to foreign relations and treaty-making powers, the President is in general responsible for and controls his own foreign policy, but international treaties and conventions, etc., must be ratified by both houses of the Congress in order to become effective.

(c) *Relation of branches.*—The relation of the executive and legislative branches is very different from the relation of the corresponding branches in the United States. The President is, in effect, a constitutional monarch who represents the executive dignity and power of the Government, but who has very little personal and absolute power.

The Government is entirely parliamentary. The ministry is appointed by the President. This ministry is in no sense a "cabinet" and can be removed from office at any time by a vote of lack of confidence by Congress.

The council of state, which has no counterpart in the Government of the United States, is in reality a species of "council of elders" and generally has more permanency than has the ministry, the latter being dependent upon Congress. The council of state has little direct power other than advisory, but has much indirect power in that

the President is forbidden to do certain important acts without the consent of the council.

The advisory congressional commission has no counterpart in the Government of the United States. Its existence reflects the zeal with which those who made Chile's constitution sought to preserve parliamentary government and is meant to be a supervisory and advisory body that will represent Congress even when the latter is not in session.

(d) *Method of governmental functioning.*—All laws must pass first in the originating body, after which they must pass in the second body, be approved by the President, and be promulgated by executive decree before they have the force of law. A law failing in either body may not be again proposed until the next legislative session. The President has a veto and the right to return a bill within 15 days with observations and recommendations. Failure to return a bill within 15 days is equivalent to approval. Two-thirds majority is necessary in both houses to overcome a presidential veto.

A declaration of war or state of war is prepared by the President and presented to both houses of Congress, who must approve or reject it.

(2) LOCAL POLITICAL SUBDIVISIONS

(a) *Basis of subdivision.*—The country is divided into 23 Provinces and one national Territory. The Provinces are divided into departments, of which there are 74; and these are divided into 865 subdelegations, further subdivided into 3,068 districts. The President appoints an Intendente over each Province and a Gobernador over each department. These in turn appoint the subdelegates and the inspectors over each district. Thus there is a complete hierarchy of officials reaching from the hamlet to the capital.

(b) *Powers of local governments.*—Under the law of December, 1891, certain of the larger towns are elevated into municipalities. They possess a fairly large measure of liberty, being governed by a council elected by direct vote of the citizens. These councils in turn elect a mayor, who, like the councilors, must not be a Government official or contractor, and gives his services without pay. Municipalities manage education within their districts, have their own police, administer the town generally, and impose industrial and business regulations.

(c) *Relation to central government.*—In general, the Government of Chile is very highly centralized at the capital. Provinces and departments have comparatively little independence in movement.

The national police, with a strength of about 500 officers, 1,000 noncommissioned officers, and 6,000 men (organized on military basis), are in charge in the capital of the Republic and the capitals of the Provinces and departments.

(3) STABILITY OF GOVERNMENT

The Government of Chile was, up to September, 1924, probably the most stable in Latin America. Since then the country has had two revolutions. The events of the year 1891, when the difference between President Balmaceda and the Congress finally provoked armed conflict, are often spoken of by foreign commentators as a "revolution," but the contest was, in reality, a civil war which involved far more extensive and important issues than are embraced in the typical Latin-American revolutionary movement.

Such political and social unrest as obtains at present in Chile, and which several times within the past few years has reached serious proportions, is a reflection of economic conditions and of that communistic and revolutionary trend which has been marked in the laboring and industrial classes throughout the world during the years since the World War. Chile, like other countries, has been greatly affected by this socialistic and communistic trend in her laboring classes.

The large and easily obtained governmental revenues from the monopoly on natural nitrate permitted Chile to indulge herself for many years in a wasteful and inefficient Government. The revenues from nitrate are now much reduced. These new conditions have been met by new economies and increased efficiency of government. There is no governmental deficit at present, but the interest and payments on foreign and domestic loans are a great drain on the revenues of the State. The budget for 1925 will balance if estimates of income and outgo are correct. Steps have been taken to increase the revenues by a change in the income tax law and a revision of import and export duties, increase of postal rates, the increasing of some domestic taxes, and the passage of laws establishing many new taxes.

The Government juntas in power since September, 1924, have increased the expenses of the State by over 60,000,000 pesos, most of which are caused by increases in the salaries of the army, navy, and public employees. However, in every case of increased expense it was covered by new revenues.

It is to Chile's credit that her reputation as to stability of Government and national financial honesty has remained so excellent that not only has she been able to obtain such loans from abroad as she desired, but has in addition been able to secure competition for these loans as between the principal money centers of the world.

2. INTERNAL POLITICAL ISSUES AND POLITICAL PARTIES

a. Important political issues.—The outstanding political issues are the convening of a constituent assembly and the election of a new Congress and President.

There are a great number of broad internal issues coming to the front in Chile. Among these issues—most of them involving social as well as political considerations—are the following, which will undoubtedly be considered by the constituent assembly and the next Congress:

The question of a system of taxation designed to reach the aristocratic land-owning classes.

The question of an extension of the suffrage by giving votes to women and by the removal of property and educational qualifications.

The question of limiting the powers of Congress in such a manner as to give the Executive a stable cabinet of his own selection and greater executive powers, such as the right to dissolve Congress under certain limited conditions. In other words, a change from the parliamentary system which has of late years been such a handicap to executives and to the national welfare.

These reforms are the outstanding aims of President Alessandri. To bring these about is the main object of the proposed constituent assembly. Completely new registrations were commenced April 15, 1925, to continue for 50 consecutive days. During this interval it is proposed to set a date for a constituent assembly. The assembly will determine whether or not there will be a new constitution or the present one modified or left as it is. It will also set the date for the election of the members of the new Congress and the President.

Separation of church and state. This is almost certain to take place either in the constituent assembly or early in the next session of Congress. It is understood that most of those heretofore opposed to separation have withdrawn their objection, including the Roman Catholic Church.

b. Political parties.—

(1) *Aims and policies.*—Chile has numerous political parties, but neither their platforms nor differences are well defined.

(2) *Power and importance.*—The principal of these parties are united into two organized and opposing blocs.

The Alianza-Liberal (Liberal Alliance) bloc is made up of the Radical, Democratic, and Liberal Alliance Parties and one wing of the Liberal Democratic Party.

The Union (Union) bloc is made up of the Conservadores (Conservatives), Liberales Unionistas (Liberal Unionists), Liberales Democraticos (Liberal Democrats), and Nacionales (Nationals).

An attempt is now being made to form a party or bloc to combat the military and communistic elements. It is not believed that any party openly opposing the military will have any chance of success at this time.

The parties composing the Liberal Alliance are those which pretend to progressive and liberal policies. It is the party of President Alessandri.

The parties composing the Union bloc are of conservative tendencies. They have as their object the defeat of Alessandri and his policies.

The Conservative Party is composed of the ultraconservative proclerical element.

(3) *Leadership*.—President Alessandri is the dominating figure in the Government at the present time, and there is every indication that he will brook no interference in the task of restoring constitutional government, order, and prosperity to Chile.

(4) *Rôle in existing Government*.—A consulatory commission to outline the constitutional changes has been appointed by the President. While all parties are actually represented on the commission, the Alliance (Alessandri's party) number 37; the Unionists (those opposed to Alessandri) number 12; and Independents 4.

c. *The Government*.—The present President, Arturo Alessandri, was elected in 1920 by the Liberal Alliance bloc and endeavored, during the earlier part of his administration, to confine his ministries to personnel selected from that bloc. He was unable to continue this policy because his parliamentary majority was never dependable, the Senate, especially, having kept a constant pressure on the administration. The President was forced, therefore, in an endeavor to find ministries acceptable to Congress, to make up his later cabinets along fusionist lines and had several ministries headed by leaders from the opposing Union bloc.

On September 5, 1924, the military dictated certain terms to the President. On September 8 the President resigned, but his resignation was not accepted by Congress, which instead gave him six months' leave, with permission to absent himself from the country. The President left the country on September 10. On September 11 a Government junta of three members (two army and one navy officer), assumed charge of the Government and dissolved Congress. On September 12 the junta accepted the resignation of Arturo Alessandri as President of Chile. The Government junta was assisted by a ministry in the capacity of advisers.

This junta functioned until January 23, 1925, when it was overthrown and superseded by another junta composed of a civilian as President and one army and one navy officer as members. The junta declared that it had taken temporary charge for the purpose

of reestablishing the constitutional Government. Alessandri was requested to return to assume his duties as the head of the Government, as under the constitution he was still President, his resignation never having been accepted as provided by the constitution.

President Alessandri returned to Chile, and on March 20 the Government junta turned over the executive office to the President. Since his return he has been active in bringing about his proposed reforms through the convening of a constituent assembly. He has assumed no legislative functions, stating that he has no right to do so under the constitution. In this respect his views are radically different from those of the two Government juntas, which passed hundreds of laws under the title of law decrees. The President has the support of the army and, for the time being, that of the navy.

(1) *The Cabinet*.—Upon the return of President Alessandri and his resumption of office, the cabinet appointed by the last Government junta was continued by presidential decree.

(2) *Political position*.—The President has the entire support of the present cabinet.

d. Regional and racial differences.—The mass of the Chilean people is made up of a mestizo type which originated from a cross of the Spanish and Araucanian Indian races. The resulting race is remarkably homogeneous.

There are numerous foreign groups—Germans in the south; English throughout the country; Italians and Yugoslavs in the trading centers. These groups are quite distinct and do not affect, politically, socially, or racially, the mass of the people.

The landed, conservative, politically powerful class who have heretofore actually controlled Chile are of more or less pure Spanish colonial blood and have so preserved their intellectual, racial, and social isolation as to constitute a more or less distinct group. This group, so far as concerns its being Spanish, should, however, be distinguished from the true or immigrant Spaniards, who are almost invariably shopkeepers, petty merchants, and salesmen.

Because of the homogeneity of race already pointed out, there are practically no regional or racial differences in Chile. The differences are social—that is, of class rather than of race.

There are no separatist movements.

e. Foreign influences in internal politics.—Foreign influence as regards internal politics is almost entirely lacking. The Chilean is an astute diplomat, and in his foreign relations manages generally to play one power against another to his own benefit; being sufficiently skilled to achieve this in foreign affairs, he manages quite effectively to prevent foreign influences in internal matters.

Foreign commercial and economical influences do affect internal affairs to some extent, the large foreign mining, shipping, nitrate,

and other interests being engaged in a continual fight to prevent legislation tending to discrimination and confiscation.

f. Bearing of internal political situation on international relations and issues.—The internal political situation in Chile has an important, if not decisive, influence as regards foreign affairs.

During the World War Chile was avowedly pro-German, a condition brought about by the German influence that had for years predominated in her army, by the fact that Peru and Bolivia were more or less pro-Ally, and by a cold-blooded belief that Germany would win and that it would be advantageous to be on the side of the victor. This pro-Germanism was evidenced principally in an indifferent neutrality.

Relations with Peru, especially as concerns Tacna-Arica, have always been greatly influenced by internal political considerations, the differences with that country having more than once been employed for the manufacture of war scares designed to divert attention from internal political, economic, and social issues and conditions.

The recent decision of the President of the United States in reference to Tacna and Arica has been received with general satisfaction throughout Chile. As the arbitration was brought about by President Alessandri, naturally his prestige has increased, and it has added to his strength and popularity.

The Chileans feel certain of victory in the plebiscite, although they consider some of its terms as rather harsh.

3. FOREIGN POLICIES AND RELATIONS

a. General aims.—The general foreign policy of Chile may be summed up as one based strictly upon expediency. The country has never had a policy or a friend that it was not prepared to quit if any advantages were to be gained in the change.

The present international situation of Chile may best be described as one of almost complete isolation.

b. Relations to other powers.—For many years Chile's foreign affairs have revolved mainly around her relations with Peru-Bolivia, Argentina, and Brazil.

The boundary troubles with Argentina long constituted a source of friction. These were finally settled by arbitration, and this was followed by a treaty between the two countries for the limitation of naval armaments and tonnage. During the World War the common pro-Germanism and indifferent neutrality of the two countries served to draw them somewhat closer together, but the war ended, and the naval limitations treaty having lapsed some years before, Chile aroused Argentina's suspicions by very considerable increases in her naval forces. Argentina has lately given evidence of a desire to cultivate friendly relationships with Peru and Bolivia, especially the

latter, this desire having its source in the necessity of a common and coordinated economic development of northern Argentina and southeastern Bolivia. In general, Chilean-Argentine relationships are, at present, while cordial enough on the surface, controlled by mutual distrust and suspicion, a condition that has been strengthened and accentuated by the developments at and from the recent Pan American conference.

As a result of the War of the Pacific (1878-1883) and of the unsettled questions remaining from that contest, Chile has a permanent and avowed enemy in Peru-Bolivia. Diplomatic relations are maintained with Bolivia but not with Peru. The differences center around the Tacna-Arica question as between Peru and Chile and the Bolivian demand for a Pacific port as between Bolivia and Chile. Now that the Tacna and Arica question is soon expected to be solved, there is some hope of resumption of diplomatic relations with Peru in the course of a few years.

For many years Chilean-Brazilian relations were close, approaching a complete understanding. The common grounds on which the two met were: (1) Opposition to Argentina, both countries having had at the time acute boundary disputes with that country; (2) opposition to Peru, Chile having her general and long-standing differences with that country, and Brazil a boundary and economic difference over the Javary border region; (3) lack of geographical contact, so that the two countries could, without danger of conflict as between themselves, act as a standing counterbalance to Argentina. The Chilean-Argentine, Brazilian-Argentine, and Brazilian-Peruvian boundary differences having been settled, and Brazil having followed a proally policy in the World War, the Chilean-Brazilian understanding may be said to have lapsed for a number of years during and following the World War. This understanding has recently been more or less revived, and Brazilian-Chilean relations may now be regarded as close, at least to the extent of a common policy of watchful waiting as regards Argentina. At the recent Pan American conference Argentina showed an aggressive attitude as regarding Brazilian naval increases. Chile, having made the original proposal for naval limitation, apparently assumed a neutral attitude as between Argentina and Brazil, but the net result was a reestablishment of the Brazilian-Chilean understanding and a much closer friendship on the part of the two countries.

Ecuador was long regarded by Chile as friendly, and Chile for many years played an active part in the control of internal affairs in that country. This friendship never had a more stable basis than common opposition to Peru.

Colombia was long regarded by Chile as a potential friend, but Colombia has recently shown a desire for complete international in-

dependence and for guidance and friendship from and with the United States rather than with the stronger South American States.

Paraguay has long been a center of Brazilian-Chilean intrigue as opposed to Argentina.

Venezuela exerts no influence one way or another as regards Chile.

Uruguay preserves its international independence and Chile has given up the task of cultivating that country.

Chile's general position in South America is thus an isolated one in general, and she fully realizes that because of her past military and diplomatic history and her efficient army and navy she is regarded with deep suspicion.

Chile has great respect for British power and influence, keeps her navy under British tutelage, and led England to believe, following the war, that she intended to permit British influence to predominate in her affairs. This impression secured a gift of considerable naval and aircraft material from England, but British influence is now no stronger, perhaps weaker, than before.

France is of considerable intellectual influence in Chile, but her political power there is negligible.

Germany, even in defeat, is of considerable influence in Chile, and with the return of German power this influence will grow unless consistently opposed. Germany is regarded as having been defeated through a too powerful combination of enemies and as having gained a moral victory.

Spain has made much effort for influence in Chile, but such as she has is mainly intellectual and racial. Spanish influence and propaganda is closely allied in Chile with that of the Catholic Church and has been mainly toward preventing the threatened separation of church and state and toward overcoming the constant effort to reduce the property holdings of the church.

Italy's influence is small, as her people in Chile are mostly confined to the small traders. There are about 15,000 Italians in Chile. However, lately, Italy has been pursuing a very active propaganda throughout South America to cultivate a closer relationship, particularly in an economic way. The *Italia*, a man of war converted into a floating sample room, with representatives of Italian mercantile houses, newspaper correspondents, and a special ambassador aboard, visited Chile and other South American countries last year. Much publicity was given to the *Italia's* visit to Chile and many facilities were afforded by the Government to Chileans to visit the ship. Last year the Italian legation was raised to an embassy. The Italian Crown Prince visited Chile last August and was accorded the honors of a sovereign. With all the efforts on the part of Italy, it is not believed that any change has taken place over

what was the case before—a kindly feeling toward Italy and its people resident in Chile.

Japan has made much effort for influence in Chile, this effort having reached its climax about 1912–1913, and again in the period just following the World War. Chile should be regarded with suspicion in Pacific problems. She accepted a large gift of munitions from Japan in 1920, and it is reasonable to suppose that she gave something in return. There is, however, a growing element in the army and navy which teaches that Chile's future, in a strategic and military sense, as regards the Pacific, lies with that of the United States. The Washington agreements as to limitation of naval armaments is generally regarded by this element as having so weakened the position of the United States as to make the cultivation of the idea of military union with that country more difficult.

Lately Japan has resumed her propaganda activities in Chile. An able minister has replaced the chargé, and a commission of some four or five able Japanese are making a tour of South America. At present this commission is in Chile, and part of its propaganda consists of a series of 45 lectures delivered in excellent Spanish by the noted Japanese diplomatic secretary and propagandist, Kinta Arai.

Owing to the recent passage of the Japanese exclusion act by the United States and the refusal of Canada to accept Japanese immigrants, the other countries of the American Continent will soon be confronted with the Japanese problem. The South American Pacific countries do not want Japanese immigrants. Up to the present the question has not been an acute one, and in any event the countries would not have dared to pass an exclusion law against Japan. Now, these other countries have a precedent in the action of two very powerful countries, and can hope for strong moral support, at least, in the event that it becomes expedient to exclude Japanese immigrants. Although Chile is not a particularly desirable country for the Japanese to go to, yet Chile will be careful how she compromises herself with Japan in order to be able to be free to exclude immigrants from her country should such action be desirable.

Mexico has recently maintained a consistent campaign for influence in Chile and met with some response until the Mexican minister mixed too much in local politics. He left Chile last year, and it is generally understood that he was asked to absent himself. The Mexican legation is still in charge of a chargé. Chile is not likely, however, to become committed to any great extent with a Government so weak and uncertain as that of present-day Mexico. The danger of German and Japanese influence securing an agreement or plan for Chilean-Mexican action as against the United States should,

however, be kept in mind as not beyond possibility when the character of the Chilean and Mexican Governments is considered.

Chile is a very active member of the League of Nations.

c. General international political situation.—Upon the return of President Alessandri March 20 all the foreign missions in Chile resumed official relations with the Government of Chile.

Peru is the only country of importance with which Chile does not have direct diplomatic relations.

At present the United States is probably held in greater esteem in Chile than ever before, although the long-existing jealousy and distrust of our power is still present but not as actively apparent as has been the case at times in the past.

CHILE

COMBAT ESTIMATE

January, 1925

(Prepared by M. I. D., U. S. Army)

I. MILITARY

1. STRENGTH

| | Present strength | Trained reserves | Military man power |
|--------------------------------|---------------------|---------------------|-----------------------|
| Regular army..... | 19,351 | | 19,351 |
| Carabineros..... | 4,149 | | 4,149 |
| First Trained Reserves..... | | 87,000 | 87,000 |
| Second Trained Reserves..... | | 90,000 | 90,000 |
| First Untrained Reserves..... | | | 190,000 |
| 20 to 30 years..... | | | |
| Second Untrained Reserves..... | | | 245,000 |
| 30 to 45 years..... | | | |
| Total military man power..... | | | 660,695 |

2. ORGANIZATION

a. War department.—The war department, under the Minister of War and the inspector general of the army (who is chief of staff) functions through six bureaus—1, general staff; 2, war-material section; 3, air service; 4, medical service; 5, division commands; 6, non-divisional commands. An administration department, a personnel department, and the office of the subsecretary of war handle such matters as records, finance, recruiting, law, rations, clothing, equipment, etc.

b. Method of recruitment.—Compulsory service has been in effect for 17 years and is strictly and impartially enforced. The term of

service is one year, after which conscripts pass to the First Trained Reserves until the age of 30 years; then to the Second Trained Reserves. Due to lack of necessary funds, the total class arriving at military age each year is never trained. The classes of untrained reserves shown above are made up of the men registered but never trained. An average of 9,000 conscripts are trained each year.

c. Armies, corps, and divisions.—The division is the largest unit maintained.

d. Combatant and noncombatant branches.—

(1) *In time of peace.*—The army is organized in time of peace as follows: 3 divisions, each composed of headquarters and 2 reinforced brigades; 1 cavalry division consisting of 3 cavalry brigades (the headquarters of the cavalry division has recently been disbanded and the brigades are stationed one in each of the infantry division zones).

Certain nondivisional troops.—A reinforced brigade is composed of brigade headquarters, 3 regiments of infantry, 1 regiment of artillery, 1 battalion of sappers, and 1 train company.

The infantry regiment is made up of 2 battalions of 3 rifle companies, 1 company of heavy machine guns each, and 1 section of accompanying troops and 1 section of trench mortars. The cavalry brigade is composed of headquarters, 2 or 3 regiments of cavalry, 1 group of horse artillery (2 batteries), and 1 section of mounted sappers.

The artillery regiment, mounted and mountain, is composed of 1 howitzer group (2 batteries), 2 gun groups (4 batteries), 1 section range-finding and observation troops.

The nondivisional troops are as follows: Headquarters, 1 telegraph regiment, 1 railway regiment, 1 battery of heavy artillery, 1 battery of mountain artillery, 1 battalion of sappers, 1 regiment of infantry magallanes, and the air service.

The corps of carabineros is a constabulary, organized on a military basis, pertaining to the Ministry of the Interior; but whenever the President of the Republic deems it necessary the corps will cooperate with the army in military operations under direction of the war department. The corps is officered by: (a) Retired officers of the army and navy; (b) furloughed first sergeants with not less than eight years of service with troops and not over 30 years of age; (c) reserve officers of the army and navy; (d) conscripts of the mounted arms who may qualify after having completed five years of study in the public schools.

(2) *In time of war.*—The war plans contemplate bringing the existing three divisions to full strength within three days to one week after mobilization, by calling the First Trained Reserves. Additional divisions will then be organized, utilizing any remaining

First Trained and the First Untrained Reserves. The Second Trained Reserves will be utilized for communications and supply services, and experienced and selected men from the cadre will be employed as noncommissioned officers in the new divisions. The Second Untrained Reserves will be utilized for supply, communication, and war-industry services. Motor and animal transport, of which there is ample in the country, will be impressed as needed and organized into the divisions or into the communication and supply services.

3. EQUIPMENT

Equipment is on hand for 250,000 troops, including proper proportion of artillery and machine guns. Artillery is armed with Krupp 75's and 105's, but these are gradually being replaced by new weapons of the same caliber of French and Italian manufacture. Mountain artillery is an old pattern, but matériel has been well kept and is efficiently served. Cavalry is armed with lance, saber, and carbine, Chilean 1896 model. Infantry is armed with Mauser, model 1896. About 600 Hotchkiss type machine guns, of Japanese manufacture, are in reserve. Animal and motor transport actually in service is inadequate to war organization but there is ample in the country. Aircraft on hand are old and inadequate, but will gradually be replaced and increased. There are 50 to 60 qualified pilots, trained by a British mission, some of whom have had American and European instruction. All equipment is well kept. A cartridge and shell factory is maintained; also shops for manufacture of personal equipment. Industrial plants and organizations capable of manufacture of war equipment are few in number and capacity. Chile could probably maintain 150,000 to 175,000 men in the field.

4. MOBILIZATION METHODS

The present division (and zone) headquarters will serve as the administrative centers for mobilization, the present regimental depots for actual mobilization and training. The majority of Chilean railways—in fact, all main and trunk lines—are Government owned, and in time of war the control of these railways and of all private lines automatically becomes military; these railways would be administered and run by civil personnel, assisted by the railway troops of the army, the railway battalion of carabineros, and the transport section of the general staff. The Chilean merchant marine automatically passes to Government control at the outbreak of war. The initial stages of mobilization would thus include concentrations in the divisional areas, and the second stage would include strategic transport and concentration of the divisions.

Chile's combat doctrine being offensive, in war against Peru or Peru-Bolivia the plans would undoubtedly call for immediate dispatch of an expeditionary force to northern Chile or to Peru proper; Chile's abundant marine transport and naval preponderance would allow this. A strategic reserve would probably be maintained in the vicinity of the Andean passes of central Chile to observe Argentina's action. The Longitudinal Railway would be utilized as far as possible in a northern concentration, but great difficulties of operation probably would force this line to be employed for supply rather than for troop-movement purposes. In war against Argentina the second stage after mobilization would probably be a strategic concentration in central Chile, with strong observing detachments at the Andean passes. In war against strong powers exterior to South America the plans would call for strategic concentrations prepared to move against landing forces.

5. DISTRIBUTION OF FORCES

a. Normal distribution.—Chile is divided into four military zones, with one division and one cavalry brigade in each of three (northern, north-central, and central) zones, and the Magallanes detachment in the southern zone.

The nondivisional troops, except the Magallanes detachment, are stationed in and near Santiago.

b. Present distribution.—The present distribution is the normal one.

6. EFFICIENCY AND MORALE

Discipline is excellent. Trials and punishments are few. The permanent troops are hardened soldiers, and the conscripts, in reality volunteers, look upon service in the army as a privilege rather than otherwise. Officers are well educated, proud of their profession, and in general capable. Relation of officers to enlisted men follows German rather than American or British ideas. Morale of troops is good and in war would be excellent, as the Chilean is fine fighting material and would in all probability be pitted against a traditional enemy. Training is excellent. Care of matériel excellent. The Chilean Army is quite backward as concerns methods and equipment when viewed from World War experience, but it is soundly trained, and its methods are probably sufficient against any likely enemy.

7. THEORY OF COMBAT

The theory of combat is essentially German—that is to say, offensive—and the organization and war plans are in keeping with this principle. Against Peru or Peru-Bolivia the true offensive would be assumed with all possible speed. Against Argentina the defense

of the Andean passes would probably be necessary, but this might include a defensive-offensive movement from and across these passes into Argentine territory. Artillery and machine guns would be used in proportion to American and European practice. Close liaison between arms is not to expected, and coordination of aircraft and artillery is not yet effectively provided for. Against Argentina guerrilla and partisan warfare would quickly develop. Against Peru or Peru-Bolivia the operations would have to be confined to larger forces on account of the distance of probable scenes of operations from the populous parts of Chile.

II. NAVAL

8. STRENGTH

The strength of the Chilean Navy for the year 1925 is 2 battleships, 6 cruisers, 4 schoolships, 5 flotilla leaders, 6 submarines (4 out of commission), 13 tugs, 1 naval aviation tender, 2 flying boats, 11 hydroplanes, 1 Curtis standard biplane. Personnel: 662 officers, 5,771 enlisted men, and 969 conscripts.

9. ORGANIZATION AND ARMAMENT

One battleship, 1 cruiser, and 5 flotilla leaders are organized into a squadron of evolution.

The majority of the ships would be useless against a modern antagonist.

The only modern ships are 1 battleship, 5 flotilla leaders, and 6 submarines.

Chile in 1924 put into service at the navy yard at Talcahuano the largest dry dock in South America. The dock is 280 meters long and capable of handling any but the very largest of the great trans-Atlantic liners.

10. DISTRIBUTION

The vessels are now in home waters.

11. EFFICIENCY AND MORALE

The Chilean Navy ranks among the best in South American countries. In training, methods, intelligence, discipline, etc., they closely resemble the British, whose naval standard the Chileans have always endeavored to attain. The officers are energetic, cultivated men, keenly interested in their profession and thoroughly in touch with its latest developments. A British officer is head of the Chilean Naval War College and another British officer is chief instructor in gunnery.

III. GEOGRAPHIC

12. GEOGRAPHIC INFORMATION AFFECTING THE STRATEGY OF THE COUNTRY

The essential military-geographic features of Chile are as follows: (1) A very long, narrow country contained between the barrier of the Pacific on the west and that of the Andes on the east; (2) at the north of this narrow strip a natural military barrier in the existence of the Atacama desert, also containing Chile's chief natural wealth, the nitrate deposits; (3) at the south of this narrow strip another natural military barrier, almost as effective as the northern desert, consisting of the heavily timbered, rainy, cold, almost trackless and uninhabited expanse of territory from Chiloe to the Straits of Magellan; (4) in central Chile, between the northern and southern barriers, the chief commercial, industrial, agricultural, and cultural strength and resources of the country.

The basic military-geographic relationships follow directly from the foregoing.

a. In a defensive sense.—(1) Against a weak power situated to the north, as against Peru-Bolivia, defense would be maintained north of the Atacama desert—that is, in the Tacna-Arica region—but this will involve extended maritime lines of communication and supply; (2) against a strong enemy, external to South America, defense of the nitrate region—that is, a defense maintained north of the desert—probably can not be undertaken, since the general situation would probably force a defense south of the desert, on the northern edge of the central zone, with one flank on the Pacific and one on the Andes, supplied by railway and road and by such maritime transport as the enemy might permit, the whole to be combined with careful observation and the maintenance of a strategic reserve against landings on the flank of or south of the defensive line; (3) against a fairly strong power situated to the east, as against Argentina, a strategic concentration that will enable a quick movement to any Andean pass that may be threatened, with strong observing forces at all passes.

b. In an offensive sense.—(1) Against a weak power to the north, as against Peru-Bolivia, an offensive based on the Tacna-Arica district, supplied by maritime and railway communications with the central zone; (2) against a strong enemy external to South America no offensive is possible; (3) against a fairly strong enemy to the east, as against Argentina, an offensive would be extremely difficult, since it would include passage of the Andean defiles and debouchment into the enemy's country, with difficult lines of communication or else the necessity of living off the country—practically an impossibility in the Argentine pampas—and, further even though the debouchment was successful, the forces would be far from any vital center of Argentine life or industry. Thus it would be almost necessary

that an offensive wait, the result of naval action, and that finally, if undertaken at all, it take the shape of a landing force.

Roads in Chile are poor. Railroads are fairly well equipped and run and would probably improve under military control. There are no rivers of importance as regards transportation. Climate in the central zone is ideal for field operations. Climate of the desert and of the southern zones is as already described.

IV. CONCLUSIONS

The general position of Chile among her Latin-American neighbors is one of isolation, both from her own desire and as a result of traditional enmity.

The still unsettled Tacna-Arica question is always a potential cause of trouble with Peru and Bolivia, and the long-existing rivalry of Argentina and Brazil causes those countries to watch Chile with jealous eyes.

Chile maintains the most efficient navy in South America and an army no less efficient, and would not hesitate to use them offensively in the future, as in the past, should Chilean views of expediency so dictate.

CHINA

POLITICAL NOTES

August, 1925

The situation remains unchanged, with the exception of another outbreak at Nanking, where workmen of the International Export Corporation created trouble when the British company refused to issue pay during the striking period. Several persons were injured and British sailors were landed.

The legations are waiting for the home Governments to agree on an identic note to cover the customs conference and the special conference proposed by the Washington conference treaties. The Chinese are showing signs of restlessness, and there is a growing sentiment in opposition to the judicial inquiry (proposed by Great Britain) on the Shanghai case, and the coming tariff conference appears to be faced with the Chinese demand for full tariff autonomy.

The Shanghai strike situation shows a little improvement, although kidnaping, intimidation, etc., continue. The union headquarters which had been closed by the Fengtien general were all reopened. The shortage of funds for the strikers is causing uneasiness among the strike leaders and efforts are being made to secure funds through contributions from the merchants. Among the plans proposed are the opening of a lottery estimated to bring in \$1,000,000 a month

and to mortgage the Kiangnan Arsenal to the Bank of China for \$3,000,000. The arrival of the Russian "trade" delegation at Shanghai is heralded by the strike leaders as calculated to add vigor to the strike. The boycott against British goods is seriously affecting the market. British tobaccos do not find any demand, and factories for their manufacture have been partially closed. Other British goods change hands only after they are labeled as German-made goods.

The strike in Hongkong remains the same, and Cantonese are now agitating for the return of Macao to Chinese rule. Negotiations between C. C. Wu, Foreign Minister of the Canton Government, and the British consul general were going on when Wu was stopped, owing to disagreement between the radical and the more conservative elements of the Canton Government. It is reported that the Kuomintang government in Canton has at last reached the depths of its impotence, due largely to the passive resistance of the farmers and merchants of Canton, who simply will not turn bolshevik at the Red Kuomintang's behest. It is said that Comrade Borodin, political advisor to the Red Kuomintang, has left Canton for Peking. Another Russian military advisor has also left for Peking. The bolsheviks are "fed up." They have spent their money and time without any success. They have found out that the farmers of Kwangtung Province want peace and are not interested in world revolution nor even in turning China into a soviet state.

Canton is in the hands of a triumvirate which rules with an iron fist. The triumvirate consists of Wang Ching-wei, Hu Han-min, and Liao Chung-kai. Liao is the extremist who believes in a reign of terror as a political weapon and he uses terroristic methods to prevent the people from driving him from the city. Opposed to him are the commanders of all the troops, except those of the Red army. The other generals are using terroristic methods to destroy the Reds when they get a chance at them.

At Amoy, Fukien, two Chinese who were friendly to Britishers were shot, one being killed and the other dangerously wounded. A general strike is projected, but not yet existent, and the boycott against British goods is being vigorously carried out.

It is learned that the Shensi Tupan, Wu Hsin-tien, suffered defeat in his campaign in Shensi because he failed to pay his soldiers. Despite all rumors of dissensions among the ranks of the second and third Kuominchun armies, Sun Yueh's division commander in Sianfu informed the Government that Sun Yueh has entered Sianfu at the request of the Shensi gentry, and that the Honan Tupan's two generals, Tien Yu-chien and Li Yung-lung, have declared that they will support Sun Yueh. Latest advice states that these two commanders have started for Honan with their two divisions of troops and that

there is no danger of a fight between the second and third Kuominchun armies over the spoils in Shensi.

The Mohammedan general, Ma Fu-hsiang, assistant tupan of the northwestern frontier defense and colonization, is invading Kansu in secret agreement with General Ma Chi, the garrison commissioner of Hsilin. If General Ma succeeds in ousting Tupan Lu Hung-tao of Kansu the strength of Feng Yu-hsiang will be greatly increased. In view of the existing cooperation between the Kuominchun and the Kuomintang forces, it is predicted that Wu Pei-fu will soon be forced to cooperate with Chang Tso-lin for the control of the northeastern and Yangtze Provinces.

An eight-province alliance is in the process of formation. Representatives from Hupeh, Szechuan, Kweichow, Chekiang, Fukien, Honan, Kiangsi, and Anhwei proceeded to Chikungshan to discuss this question. The agreement arrived at this conference provides for the maintenance of Tuan Chi-jui as chief executive. This combination is significant, as it appears to indicate the reappearance of Wu Pei-fu upon the political stage. This is probably the outcome of the conferences and agreements reported by agents in previous report.

War rumors between Kiangsu and Chekiang seemed to have died down. On the one hand, Cheng Chien, civil governor and concurrently acting tupan of Kiangsu, threatened to use force against Sun Chuan-fang if he did not return the four districts to Kiangsu, but, on the other hand, it is said that the Fengtien general at Shanghai has gone to Hangchow to visit Sun Chuan-fang in order to clear all misunderstandings.

Quite a number of militarists are demanding the release of Tsao Kun. Tupans Sun Chuan-fang, Hsiao Yao-nan, Chow Yin-jen, Gen. Sun Yueh, and others have all sent in requests for his release. It is said that Chang Tso-lin is not adverse to this request, but Tuan Chi-jui said that he had no rigid view in regard to the matter, but believed it inadvisable to make any change from the former mandate, which stated that this matter would await solution by the citizens' conference. The reluctance to release Tsao Kun is due to the fact that Tuan and Feng are afraid to liberate Tsao, knowing full well that once Tsao is off their hands Wu Pei-fu will immediately settle accounts with Feng Yu-hsiang. Tsao now serves as a hostage for the good behavior of Wu Pei-fu.

The Chinese employees of the British Legation went on strike on the 7th instant, declaring that they would not return to work until the Shanghai and other matters were settled. It is said that they took this step on the promise that their salaries would be paid by supporters.

The Minister of Foreign Affairs, Mr. Shen Jui-lin, has informed the American minister that the Chinese Government will issue a note in the near future calling attention to the ratification of the Washington conference treaties and setting a tentative date for the reopening of the tariff conference in Peking on October 15. The Chinese Government proposes to establish a tariff conference bureau with Dr. C. T. Wang, W. W. Yen, or Admiral Tsai Ting-kan at the head.

Soviet activities

KALGAN

From the 15th to the 18th of July a conference of the delegates of the Third International of the Kalgan group has taken place. Only the actual members possessing special mandates have been invited, viz: Ilyin, Blikher, Konoplev, Mosnkovtch, Leiman, Grishkovitch, and Katin (Lisman). Chinese have not been invited to that conference because they represent a separate group. During the sittings of the conference a committee of three (Ilyin, Blikher, and Katin) has been elected and the following resolutions have been passed:

1. To pay the most serious attention to the work among the Chinese soldiers; this work to be carried on through the communistic nuclei and through the instructors.

2. To check the foreign influence, especially that of the missionaries, as they openly work against the comintern, joining themselves with the progressive elements. In the work against the foreign influence not to stop before any measures up to the organization of bandit raids and all kinds of excuses.

3. To appoint trustful men to the commanding and administrative posts, and to keep a watchful eye over the work of the experts (Spetz) and the Chinese.

4. To organize without delay the motor-car transport between Urga and Kalgan, and to liquidate the undesirable element of the private owners of motor cars. [NOTE.—Has been accomplished.]

5. To expel all Russians of differing political credo.

In connection with the scheme of invading the western Provinces, it is planned, taking advantage of the rainy season and the absence of Gen. Chang Tso-lin, to occupy in the first turn Shenhsi and Shanhsi. For that purpose a loan of \$4,000,000 is promised General Feng by Moscow, of which sum one million has been already advanced through the Dal Bank. As a condition of this loan, an agreement between General Feng on one side and Moscow, Canton, and Mongolia on another side, should be concluded. A representative of

General Feng left for Moscow via Urga to sign this agreement. [NOTE.—Occupation of Shensi and Shansi has not materialized.]

According to the projected agreement, the Outer and Inner Mongolia would be united and would get the complete independence.

Besides the northern government (under General Feng) and Canton Government two more governments—(a) for middle China and (b) for the Provinces of Hsin-Chiang and Kan-su—are planned.

All military operations in connection with invading Shensi and Shanhsi will be carried on under the secret direction of Bliikher, who declared (a few days ago) that the occupation of both Provinces will be completed before August 15.

General Feng and some of his subordinates applied to the Oriental Section of the Third International asking to be admitted into the communistic party.

In July the following munitions have arrived at Kalgan from Urga:

| | |
|--------------------------------|--|
| Rifles----- | 15,000 (with 1,000 cartridges for each rifle). |
| Colt machine guns----- | 9 (with 50,000 cartridges for each). |
| Mauser Pistols----- | 5,000 (with 750 cartridges for each). |
| Intrenchment instruments for-- | 1,000 men. |
| Explosives----- | 100 poods. |

In July the following munitions have arrived at Urga:

| | |
|------------------------|--|
| Cavalry rifles----- | 10,000 (with 1,000 cartridges for each). |
| Nagan revolvers----- | 5,000 (with 1,000 cartridges for each). |
| Colt machine guns----- | 9 (with 50,000 cartridges for each). |
| Swords----- | 10,000. |

In the beginning of August a field battery is expected.

In Uliasutai and Kogdo schools for propaganda are established.

In Outer Mongolia, especially Kobdo, Vankuren, Uliasutai, and Ulankom regions, a systematic extermination of Lamas and nobles is going on. The undesirable men are arrested without any cause and shot or thrown into prison without any trial. This "work" is directed by a certain Mr. Soloveitchik, son of a Moscow banker, a young man, 26 years of age. This gentleman has been boasting that in July 700 men have been sent to "Buddha" by him.

A few days ago a French communist, Louriet, who lately came to Canton from Europe, has been delegated by Mr. Borodin to Kalgan in order to exchange views with Colonel Ilyin and to establish a coordination of activity between Canton and Kalgan.

During the conversation ensuing between them the Frenchman informed Colonel Ilyin that Canton was going to proclaim a republic on the soviet basis and to join the Union of the Soviet Republics.

"I do not approve of this scheme," said Ilyin. "This step would be too premature, and, besides putting Canton in a very precarious

situation, it might undermine the whole work of the Third International in China."

"I have heard from Mr. Borodin about your views," replied the Frenchman, "and I quite agree with him when he says that your tactics are too slow. Our idea in Canton is to push the revolution as quick as possibly. An immediate nationalization and requisition of the bourgeois class property, a terror and class war might bring much better and quicker results. We have tried it in Canton, and are quite satisfied."

"I do not agree with you," said Colonel Ilyin. "We will not start before we are duly prepared. Look now at our Mongolian Army, 70,000 men strong, very well drilled and armed up to date. Look at General Feng's army, which grows every day and which, under my direction, will become a real menace."

"Well, well," replied the Frenchman. "But are you sure that your General Feng, with his army, would not betray you as soon as they get a good opportunity to do so? But it is not our case, because our army is drilled not only in war but is also drilled in crime. Our soldiers know very well that if somebody comes to fight them, in case of their defeat, there will be no mercy to them, and therefore we can rely on them—they will fight."

"You say that in case our joining to the soviet union we would be crushed in a few weeks. May be, but at the same time it would mean such a civil war which China had yet never seen. And that is just what we want."

In the issue they both could not persuade each other and their interview has come to nothing.

The agreement mentioned above was signed on August 5 by General Feng, Colonel Ilyin, and the Canton representatives and sent to Moscow for ratification. On account of that a lot of champagne has been taken.

Negotiations are going on between General Feng and the Moham-medan general Ma-fu-hsiang (frontier commissary in Hsi-ning, of the Kansu Province).

Hsin-chiang, military governor, general Yen, apparently is ready to throw in his lot with General Feng.

Colonel Ilyin is called to Peking, where Mr. Borodin is also coming.

A reliable source has reported that within a few days there will be a general confiscation of privately owned property in Kalgan. This informant states that the confiscation would be attended with danger to foreigners of any nationality.

Other information is to the effect that a similar movement is planned for Canton, coupled with a declaration of independence, and affiliation with the Union of Socialistic Soviet Republics. An

emissary from Canton is reported to have visited Kalgan recently for the purpose of urging concerted action between those places to the same end. The Soviet advisor to Feng Yu-hsiang came to Peking following the interview with this emissary from Canton. It is possible that a simultaneous movement, as above outlined, may have been decided upon.

A man named Witte is said particularly to be charged with this duty.

[NOTE.—While these plans were undoubtedly made they did not materialize. Kalgan remained perfectly quiet.]

Details of material and personnel of the soviet aerial expedition from Moscow to Peking are as follows:

Biplanes.—Two; motors, 400 horsepower; 12 cylinders; engines built in 1915 in Baltic works (Baltiysky Zavod, Petrograd); bodies built recently in Petrograd. The bodies are too small for the powerful and heavy motors.

Monoplanes.—Two German "Junkers"; 180-horsepower motors of the type used during the war. One French "Poum"; 160-horsepower motor; body built in Russia. One German "Samsom"; 160-horsepower motor; body built in Russia. Both the "Poum" and "Samsom" are considered very unsafe.

Reserve material.—Four motors; old type.

Personnel.—Chief of the expedition, Schmidt; communist, Jew, shoemaker from Gomel; never had any connection with aviation. Assistants: Levin, Antzilevitch, and Bleicher, all Jews, former members of the Tcheka; at present "G. P. U." agents. Flyers: Naidenoff, Volkovaninoff, Gromoff, Tomashevsky, Ekatoft, Poliakoff; all these are flyers of experience during the war. Mechanics: Mikheeff, Ozloff, Kuznetsoff, Rodzevitch, Kamysheff, Malikoff. Of the flyers, Ekatoft only is a communist. None of the mechanics have any connection with the Communist Party.

Schmidt is a drunken, brutal, tyrannical boor. His control over the flying and mechanical personnel is effected through their complete terrorism, their families being held in Russia as hostages for their behavior. Flyers and mechanics live in what amounts to confinement in Peking. It is reported that Schmidt, at Irkutsk, threatened immediate death to the flyers if a plane then dismantled for repairs was not ready in 15 minutes to take him and some frail friends on a joy ride.

Plans are being made to send this air expedition to Japan. The flyers have said that such an attempt is suicidal, as the flight from Moscow has demonstrated the inefficiency of the planes. Apparently, however, if ordered they will have to go.

Three of the planes noted arrived in Peking on July 13, one later on the same day, one on July 17, and one has not yet arrived.

List of Russian Soviet forces distributed in Siberia

Vladivostok.—Pacific Division (3 regiments of infantry and 1 regiment of artillery, of which 1 regiment of infantry is stationed at Nikorisk). Corps of armored cars.

In Feng Chuang.—One regiment of artillery (8 mountain guns and 90 other guns); 2 companies of cavalry.

Nikorisk.—One regiment of infantry (detached from Pacific Division); 2 companies of cavalry.

Under command of Siberian Corps.—Twelfth Corps (Twenty-sixth and Thirty-fifth Divisions); Twenty-first Corps (Twelfth and Twenty-first Divisions); Eighteenth Corps (Nilungkiang Division and Pacific Divisions, Vladivostok); Special Seventh Corps of Artillery (Thirteenth and Fourteenth Regiments); Special Ninth Corps of Artillery (Seventeenth and Eighteenth Regiments); corps of armored cars, 2 troops of chariots, and 11 armored trains; flying forces (7 companies of reconnaissance and 1 company of fighters).

Navy forces in extreme Orient.—Siberian fleet (5 destroyers, 1 special-service vessel, and 1 transport); Neilungkiang fleet (4 large gunboats and 3 small gunboats).

It is true, in passing, that Gen. Ma Fu-hsiang has been reported as having combined with Ma Chi in an invasion of Kansu, which, if true, agrees with the plans as above outlined.

However, although it is believed important to keep in touch, if possible, with the communistic activities, especially as Feng Yu-hsiang is by no means a negligible figure potent with extremely unpleasant probabilities, it is thought that the top of the curve of soviet influence in China has been reached, and it is doubted that as a great factor in the future Chinese situation they will be very effective. In talking with prominent Chinese officials it was understood from one of them, who had seemed previously to lean toward Russian influence, that he believed Feng Yu-hsiang was double-crossing them. They seemed to admit he was getting soviet money and munitions, and they jokingly said it was a case of the Russian trying to steal something from China and finding himself out of pocket.

GREAT BRITAIN

NAVAL AVIATION

1 October, 1925

(Compiled by O. N. I.)

The control of service aviation in England until April 1, 1918, was along somewhat the same lines as that now existing in the United States. On that date the royal air force was created and all service aviation was placed under its control. Upon the development of a real civil aviation after the war those activities were also placed under the general control of the air force. Under the organization of the air force there is a command known as coastal area, and under this command come all air force activities connected with the navy.

With regard to naval aviation, the general system is that the Air Ministry raises, trains, and maintains a fleet air arm. The Admiralty, however, include in their estimates a sum which provides for the payment to the Air Ministry of a "grant-in-aid" in respect to the expenditure included by that department on the pay allowances and rationing of the personnel of the fleet air arm (including the naval officers attached to the air force) and the provision of the necessary material.

The conditions in cooperation between the British Navy and the royal air force have been extremely unsatisfactory and the British Navy is consistently attempting to obtain full control of its air arm. In 1922 a subcommittee of the committee of imperial defense was appointed to go into the general subject of "relations between the navy and the air force." The report of this committee is known as the Weir report, and was submitted on 21 July, 1923. The committee made certain recommendations that had the general nature of proposing more extensive exchange of officers between the staffs of the two services, with increased assignment of naval officers to temporary flying instruction and duties. Certain minor concessions were made to the navy; but the main request of the navy, that of air separation, was not acted upon.

In practice the recommendations of the Weir committee have proved unsatisfactory to the navy and to the royal air force personnel assigned to the navy. Only through good will and give-and-take on the part of both services have matters gone forward as well as they have. In the general business of administration the fact has become generally more evident that for purposes of modern war preparation the present arrangement is inadequate.

The appreciation that the navy should have a greater control of its aviation finally resulted in a set of Admiralty orders approved

by the Government and issued in April, 1924. These orders provided that the officer personnel of the royal air force employed in the fleet arm may be obtained to the extent of 70 per cent from the navy for pilots and 100 per cent for observers. The periods of service with the royal air force were also defined, as well as the method of promotion, etc.

Admiralty orders relative to volunteers for naval air work other than air observation are quoted in part as follows:

Officers who apply are required to volunteer for service in the fleet air arm, involving attachment to the royal air force for certain periods, the duration of which will be decided by the Admiralty from time to time. Officers who volunteer will not be required to undertake a second or subsequent period of attachment, except with the consent of the officer concerned. For the present it is intended that the periods of attachment and general naval service shall be approximately as follows:

A. First period, air, four years, which will include a period of training.

B. Second period, general naval service, two years.

C. Third period, air, two years for 50 per cent of the officers who have completed A. The rest remain in the general naval service.

D. Fourth period, air, two years for 60 per cent of the officers who have completed C. The rest remain in the general naval service.

E. Fifth period, general naval service or air, as required, for remainder, if any, of lieutenant commander's time, for all officers who have completed D.

Appointments of attached officers will be made by the Air Ministry on the nomination of the Admiralty.

THE COASTAL AREA

Apart from matters of policy, liaison is secured between the navy and the air force by a special machinery termed the "Coastal area organization." This is provided by the Air Ministry for the purpose of administering the fleet air arm on land, subject to the general control of the Air Ministry. The coastal area is commanded by a senior air force officer, who is responsible for the maintenance at full strength of the personnel and matériel of the fleet air arm and for its special training for naval purposes. He is the adviser to the Admiralty on air matters other than policy, and communicates directly with the commander in chief, Atlantic fleet, on all matters connected with the fleet's requirements.

Under the air officer commanding the coastal area are two group captains, with headquarters at Leuchars (the Forth) and Lee-on-Solent, respectively. In the case of larger operations involving the embarkation of aircraft or the carrying out of operations from shore bases. The naval commander in chief notifies his requirements direct to the air officer commanding coastal area. For minor operations he deals directly with one or other of the group captains.

Corresponding arrangements are made at Malta for the Mediterranean fleet.

POSITION ON BOARD CARRIERS

As soon as the air units are on board the carriers they come under the orders of the naval commander in chief, and are altogether outside the control of the coastal area organization, which is then, as we have already noted, only responsible for keeping units up to strength in air personnel and matériel.

The navy is charged with the construction and operation of all airplane carriers and for their equipment, with the exception of equipped planes which are furnished by the Air Ministry by the application of an item of the naval appropriation allocated to the Air Ministry.

Organization and Disposition of Aircraft Carriers

| Name | Tonnage | Speed | Present condition | Remarks |
|-----------------|-------------|--------------|---|---|
| | <i>Tons</i> | <i>Miles</i> | | |
| Furious..... | 19, 100 | 31 | Ready..... | 36 airplanes in flying condition. |
| Glorious..... | 19, 100 | 31 | Being converted. Will be ready end of 1925. | |
| Courageous..... | 19, 100 | 31 | do..... | 24 airplanes in flying condition. 18 airplanes in flying condition. 15 airplanes in flying condition. 3 airplanes. |
| Eagle..... | 26, 200 | 24 | In commission in Mediterranean..... | |
| Hermes..... | 16, 950 | 25. 7 | do..... | |
| Argus..... | 15, 775 | 20 | Going in reserve..... | |
| Pegasus..... | 3, 300 | 20. 8 | In commission..... | |
| Ark Royal..... | 7, 450 | 10. 6 | Out of commission..... | |

Strength of British Air Force

| Item | General service | Fleet air arm |
|---|--|------------------|
| Unit of organization..... | Squadron..... | Flight. |
| Total number of units..... | 43 ² / ₄ (organized); 54 total..... | 21. |
| Number of aircraft in unit..... | 12 ¹ | 6 ² |
| Units at home..... | 25 ¹ / ₂ | |
| Units abroad..... | 18 ¹ / ₂ | |
| Number of aircraft in commission exclusive of training..... | 600 ⁴ | 115 ⁴ |
| Number of aircraft in reserve..... | 50 per cent home stations; 100 per cent foreign service..... | 100 per cent. |
| Total officer personnel..... | 3,282 (1924-25) ⁴ | 365 ³ |
| Total flying officers in above..... | 2,038 ⁴ | 238 ⁴ |
| Enlisted men in air service..... | 28,000 ⁴ | |
| Enlisted pilots..... | 107 qual; 38 nonqual..... | None. |

¹ 12 for single-engine squadrons; 10 for twin-engine squadrons.

² 6 for single-engine aircraft; 5 for twin-engine aircraft.

³ Total for activities connected with aviation.

⁴ Estimate.

Lighter-than-air Craft

| Built | | | | | Authorized | | | | |
|------------|-------------------------|---------------------|-------------|----------------|------------|--------------------------|---------------------|-------------|-------------|
| Type | Name | Cubic feet capacity | Length | Diameter | Type | Name | Cubic feet capacity | Length | Diameter |
| | | | <i>Feet</i> | <i>Ft. In.</i> | | | | <i>Feet</i> | <i>Feet</i> |
| Rigid..... | R-33..... | 1, 950, 000 | 643 | 78 9 | Rigid..... | R-101 ² | 5, 000, 000 | 720 | 140 |
| Do..... | R-36..... | 2, 101, 000 | 672 | 78 9 | Do..... | R-100 ² | 5, 000, 000 | 695 | 132 |
| Do..... | R-37 ¹ | 2, 000, 000 | | | | | | | |
| Do..... | R-80 ¹ | 1, 222, 200 | 535 | 75 | | | | | |

¹ To be broken up.

² To be built by Air Ministry, military purposes.

³ To be built by Vickers for Government. Eventual use, commercial.

Reports of air activities and opinions from our attachés and observers abroad indicate that in regard to pursuit aviation the United States is at present ahead of Great Britain. In bombers Great Britain is in the lead, and the two countries are on about par in the development of observation planes. Great Britain is ahead of the United States at present in the development of aircraft carriers actually in service, but in regard to general seaplane development and in the operations of planes from men-of-war by means of catapults Great Britain is believed to be far behind the United States.

The following quotation from Brassey's Naval and Shipping Annual, 1925, on "The navy and its fleet air arm," expresses a growing sentiment of dissatisfaction in Great Britain with regard to the relations of British aviation and the British Navy:

The dissatisfaction of the navy with the present organization and control of its aerial arm has been apparent to the public generally for some years past. Public discussions and parliamentary questions have shown the concern with which the position is viewed by those with knowledge of the subject. Uneasiness has no doubt been allayed by the working arrangement reached between the Admiralty and the Air Ministry in agreeing to the decision of His Majesty's Government to give a trial to the recommendations of the national defence committee. Nevertheless, anxiety still exists, since it is not clear that the compromise arrived at can overcome the inherent defects of a system involving dual control and responsibility for the efficiency of the fleet. How can that efficiency be effectively maintained, it is asked, when there exists within the navy a service separate from the navy, a service with different conceptions and different traditions, a service looking to an authority independent of the Admiralty for its upkeep and preferment?

GREAT BRITAIN

REORGANIZATION OF COLONIAL OFFICE

July, 1925

(Prepared by M. I. I.)

Under an apparently trivial announcement made by the British Prime Minister in the House of Commons on June 11 is hidden one of the most important steps taken in recent years in the development of the constitution of the British Empire.

Replying to a question as to what changes it is proposed to make in the organization and designation of the Colonial Office, Premier Baldwin stated:

The Government have come to the conclusion that the existing organization of the Colonial Office is no longer in correspondence with the actual constitutional position in the Empire, and is inadequate to the extent and variety of the work thrown upon it. It fails, more particularly, to give sufficiently

clear recognition to the profound difference between the work of communication and consultation with the self-governing partner nations of the British Commonwealth and the administrative work of controlling and developing the Colonies and Protectorates for whose welfare this house is directly responsible. The following changes are therefore proposed :

“(1) The conduct of affairs with the Dominions will be under a separate new Secretaryship of State for Dominion Affairs with its own Parliamentary Undersecretary of State, who will also act as chairman of the overseas settlement committee and Permanent Undersecretary of State.

“(2) For reasons of practical convenience, the new Secretaryship of State will continue to be vested in the same person as the holder of the Secretaryship of State for the Colonies, and the Department of Dominion Affairs will continue to be housed in the Colonial Office.”

This step was taken because of the growing incongruity in conducting the relations of the mother country with great Dominions like Canada on the same lines as the relations with Colonies like Jamaica. The Dominions have complete autonomy and independence in home affairs while the Colonies, managed from Downing Street, are obliged to refer to the Colonial Office many questions for final adjudication.

Like many things British, the situation is complex and no single theory is of value in attempting to explain it. The dominant fact, however, is that the Dominions have as yet no international status other than that which they enjoy in virtue of their membership in the League of Nations, and there is constantly being raised in more or less acute form the problem of the measure of autonomy which is compatible with the unity of the Empire.

Since the World War the anomaly of the old arrangement has been growing yearly more apparent. The British Dominions were made partners not only in the World War but in the great affairs that centered around the making of the treaty of Versailles. They were nominated as equals in the Assembly of the League of Nations. They have been given the powers of negotiation. They are fully conscious of these important developments, and now that they consider themselves sovereign states and fellow members of the league, they will not much longer accept the status of subjection which has been allotted to them by the British Government.

But the terms of the covenant of the league show that membership does not confer upon a Dominion, in the field of international relations, all the rights and powers of a sovereign state.

All the Dominions are at the present time passing through a grave phase of unrest in regard to their relationship toward the imperial center. It is impossible to discover that this is in any sense a phase of disloyalty. On the contrary, there has never been a stronger attachment to the home land than since the World War. Memories of common sufferings and common heroisms have thickened the ties of blood, but the Dominions have a shrewdly practical outlook on

their own fortunes. The World War deprived them of the cream of their youth and left them saddled with heavy debts. Both Canada and Australia are exceedingly troubled about those debts. Australia received mandated islands as some compensation, but little to compare in area with the vast mandate of southwest Africa added to the territory of the South African Union. That addition paid South Africa well for the part which she took in the World War. Canada, in territory and in reparations, received practically nothing, yet out of her 9,000,000 population lost vastly more proportionately in killed and wounded than the United States out of her 110,000,000, and she emerged from the struggle with little but poverty as her share of the spoils, while the United States emerged as the wealthiest and most powerful Nation in the world.

As the Dominions recover from the strain of the recent great trial war memories will fade into their proper perspective. The real underlying anxiety of both Canada and Australia is: Could they stand another such war? Could they in men or resources seriously contemplate, as part of their normal political existence, the repetition of such an ordeal? Probably not—at least for many years to come—and their sober feeling is that they would be wrong to risk it except in an issue of the very existence of the Empire. So they are moved to a strong desire for closer consultation, keener and more continuous cooperation with the home country. They have not, for some time past, been satisfied with the official machinery of the present "Commonwealth" relationships, nor with their exclusion from the British Foreign Office, yet no Dominion would care to be forced daily to consider the foreign affairs of the whole British Empire. Neither do they evince any desire for imperial federation, or an imperial parliament, an imperial second chamber, or an imperial cabinet. They have made little or no use of the various devices provided for them by a succession of home governments, all anxious to meet the wishes of the British Dominions.

It has been found most difficult to develop other means of cooperation. At present every great Dominion is represented in London by a high commissioner, generally a man of cabinet rank, sometimes an ex-Prime Minister. Many Empire reformers have contended that these commissioners should be employed as ambassadors between the home country and the Dominions. At present they are relegated chiefly to commercial affairs—trade, emigration, shipping, and so forth.

The main trouble seems to be that the Dominions are not able to decide what they want in the matter of day-to-day consultation on foreign affairs and are reluctant to give more power to their high commissioners. The Dominion Prime Ministers apparently desire to keep the day-by-day conduct of foreign affairs in their own

hands. But that is in many ways impossible, for they are much too far away and too deeply absorbed in their own home affairs to be able to share with the Foreign Office either responsibility or knowledge of all the complicated foreign relations of the British Empire. Nor do they actually desire this. The most that the Australian Government demands is to be consulted on the affairs of the Pacific Ocean. Canada would probably be satisfied with a firmer grip, if not complete control, over her relations with the other nations of the two Americas. In no Dominion is a claim put forward by the Government to be kept in daily touch with the problems of European reparation and security.

Yet there is the question of sovereignty and the dignity that goes with it. With an undersecretary devoting all his time to the Dominions, it is obvious that it will be much easier for the British Government to discuss delicate matters with them than when the same officials had to deal with Dominions along with dependencies of all sizes and degrees of importance.

The present conservative government in Great Britain has set about the handling of the Dominion situation in a masterful way, knowing that, through each enlargement of popular powers granted to her citizens or her Dominions, Britain has grown more steady, conservative, and powerful. The grant of complete self-rule to Ireland in 1923 has already visibly changed the attitude of the Irish people toward the British Empire, even after all the centuries of oppression and strife.

In future relations with the Dominions it now seems likely that as far as possible the home government will maintain an attitude of assent to their suggestions and demands, thus consciously or unconsciously following the course outlined by Edmund Burke in his American speech on conciliation in 1775:

My hold of the Colonies is in the close affection which grows from common names, from kindred blood, from similar privileges and equal protection. These are ties which, though light as air, are strong as bonds of iron. Let the colonists always keep the idea of their civil rights associated with your Government; they will cling and grapple to you, and no force under heaven would be of power to tear them from your allegiance. But let it be once understood that your Government may be one thing and their privileges another; that these two things may exist without any mutual relation; the cement is gone; the cohesion is loosened, and everything hastens to decay and dissolution. As long as you have the wisdom to keep the sovereign authority of this country as the sanctuary of liberty, the sacred temple consecrated to our common faith, wherever the chosen race and sons of England worship freedom, they will turn their faces toward you. The more they multiply the more friends you will have; the more ardently they love liberty the more perfect will be their obedience.

GREAT BRITAIN

MISCELLANEOUS NOTES

September, 1925

High steam pressure turbine development

The decision of Sir Charles Parsons and William Denny & Bros., of Dumbarton, to build a new turbine steamer to demonstrate the thermal efficiency of high steam pressure is an event of the greatest importance in marine engineering, says the Shipbuilding and Shipping Record.

It will be remembered that a paper of far-reaching significance was read by Sir John Biles at the last meeting of the Institution of Naval Architects, foreshadowing this practical demonstration of high steam pressures.

The new vessel is to be built for the company known as Turbine Steamers (Ltd.), which was formed by Sir Charles Parsons, Denny & Bros., and Captain John Williamson in order to construct the first commercial turbine steamers.

The machinery will be the main feature of the new steamer, and the idea is to develop about 4,000 horsepower. The turbines will follow the usual two-shaft arrangement with gearing, but, of course, will be specially designed, as the steam pressure to be developed in the water-tube boilers will be 500 to 550 pounds per square inch at a temperature of 700° to 750° F. As suggested in Sir John Biles's paper, the condensers will be subdivided, and large surfaces will be provided to give a high vacuum. The two water-tube boilers will be fitted with air preheaters. Another noteworthy feature is that the steam for the auxiliary machinery will be at a reduced pressure. The auxiliary exhaust steam will be utilized for heating the feed water to about 200° F., but the temperature of the feed water will be increased to about 300° F. by steam tapped off from a suitable stage of the turbines. The steam pressure is double that of any existing marine installation.

Closing of royal dockyards at Rosyth and Pembroke

The Secretary of the Admiralty communicates to the press the following notice:

The question of the amount of construction and repair work likely to fall upon the royal dockyards in future years has been receiving careful attention with reference to the program of new construction recently announced to Parliament by His Majesty's Government and to certain prospective changes in fleet organization which have been decided upon by the board of admiralty

in pursuance of the Government's policy of reducing the standing charges of the navy.

It is clear that there will be a considerable diminution in the amount of construction and repair work to be undertaken in the dockyards in future years, and this reduction renders it inevitable that there shall be a considerable reduction in dockyard numbers. The board have decided that in this new situation the best method of securing efficiency and economy will be to reduce the number of establishments.

The dockyards at Rosyth and Pembroke will therefore be reduced to a care and maintenance basis as soon as it is possible to finish or transfer the work now actually in progress there. The retention of these two yards on a care and maintenance basis means that the buildings and plant will be maintained in such a state as will enable the establishment to be opened again in case of need.

Under this policy the discharge of about 1,200 men from these two yards will be necessary in September, and the remaining numbers will be reduced gradually so as to admit of the yards being closed down about the end of the financial year, but as far as possible steps will be taken to avoid discharges during the winter months. Established men, except in so far as it may be decided to be preferable to place them on the pension list, will be transferred to other yards.

The reduction in dockyard numbers necessitated by the smaller program of work at present in view for the next year is 3,000 men, of which the 1,200 to be reduced in September will form a part.

After the special expenses incidental to the closing down of these establishments have been met, there will be a considerable permanent annual economy due to the saving on the overhead charges at Rosyth and Pembroke.

The closing of any other yard is not necessary at present, but the question will receive further consideration when all the inquiries now in progress have been completed, and the effect of all changes bearing on the amount of dockyard work in subsequent years can be estimated.

The cruisers for the Australian Navy

The Federal Parliament, in its session of 1924, authorized the building of two 10,000-ton cruisers, to replace vessels which had become obsolete. The proposal was strongly opposed by the Labor Party, which for some time past has held the view that no danger threatens Australia from the Pacific, and that the safety of the country can best be promoted by the methods of the League of Nations. One of the cruisers was to be built in Great Britain; the decision as to whether the other should be built there or in Australia was to be deferred until the Government had obtained tenders from both countries.

Tenders have been received, and the Government has announced that the lowest tender for building a cruiser in Australia is over £800,000 more than the lowest tender from Great Britain. The Government has been anxious to foster the Australian shipbuilding industry, and to do so it would be prepared to place orders in

Australia even at a cost considerably higher than for building in Great Britain. But it had to face the facts that special and very expensive plant would have to be provided for the building of war-ships, and that very little use could be made of this plant; and that if the plant required for producing armor plate, guns, and other fittings were not provided the amount of Australian material to be used would not be more than 15 per cent of the total cost of material, the remainder having to be imported ready manufactured, and requiring only to be assembled and fitted. The Government therefore came to the conclusion that there was no justification for incurring the additional expenditure involved by placing the order in Australia, either with a view to the establishment of a new industry or to provide a stimulus to existing industries.

The sum saved by placing the order in Great Britain is to be spent in building a 6,000-ton seaplane carrier. This will be built in Australia, and so will serve to keep an Australian dockyard at work and to hold together its skilled technical staff.

The total cost of the two new cruisers from Great Britain will be about £4,250,000 and they are to be delivered within 36 months.

Devonport dockyard

Admiral Sir R. F. Phillimore is commander in chief and Rear Admiral C. S. Woolcomb is dockyard superintendent at Devonport dockyard. Visitors are not permitted to visit that part of the yard where the aircraft carriers *Furious* and *Courageous* and mine-laying cruiser *Adventure* are lying.

H. M. S. *Cornwall* is on the stocks with all the framing up and practically all outside plating completed. The bulges appear to extend to within about 50 feet of the bow and stern and from above the water line to the turn of the bilge. A glimpse of the protective deck was obtained sloping down about 20 feet inside of the stern. This deck was so narrow at the point observed that it was impossible to see from below whether or not it was flat or curved. It was stated that she would be launched about the 1st of February. It was observed that she had four screws.

Portsmouth dockyard

Admiral Sir Sidney R. Fremantle is commander in chief at Portsmouth. Several of the battlehips are in dock, those of interest being the *Warspite*, on which it was observed they were fast completing her new bulges. Additional platforms were being erected on the foremast, for what purpose it could not be definitely ascertained, but pre-

sumably for searchlights. The *Renown*, which is in the yard for a general refit, appears to have had a very little work done on her, and it was stated that she is used as a permanent dockyard job when nothing else is in hand. The large German dry dock, that is soon to be towed to Devonport, was seen in the yard, and it was stated that her tests had been satisfactory. The new cruiser *Suffolk*, on the stocks, appears to be in practically the same condition as the *Cornwall*. It was stated she would be launched in February, 1926. Neither of the two new cruisers assigned, one to Devonport and one to Portsmouth, can be laid down until the slips occupied by the *Suffolk* and *Cornwall* are available, so the two new cruisers which the Admiralty announced would be laid down this year will likely not be started until February or March, 1926. The airplane carrier *Argus* was observed in the stream, and it was stated that she would go out of commission and be replaced by the *Furious*, whose recent tests have at last shown her to be satisfactory. Great care is taken to see that no confidential information is given or gained by visitors at British dockyards.

Malta notes

Three army regiments are stationed at Malta at the present time.

Naval section of the royal air force is discontented with present combined air force policy, as it causes much confusion in commanding, executive, and upkeep branches.

Battleships undergoing refit at Malta send enlisted men on two weeks' camping trip to the adjacent island of Gozo.

War games and maneuvers are directed against Japan as a possible enemy.

During the recent war, when the Maltese Royal Naval Reserve was mobilized, they embarked on their respective ships in the morning amid bands playing, cheers, and leave taking on the part of the remaining native population. That night when liberty was granted most of the Maltese went ashore to bid a final good-by, and next morning only about 25 per cent of the original draft returned. After the war the Maltese Royal Naval Reserve was disbanded.

On H. M. S. *Emperor of India* the electrical and torpedo departments are allowed £400 per quarter. This includes material and repairs abroad and repairs from tenders. In dockyard no account of expenditures is charged against the allotment. Any funds left over may be turned in or used by the departments concerned for experimental or research work.

Gas masks are worn at all gun drills. This is sometimes carried on for four hours at a stretch.

In target practice, using offset sight firing, difficulty is experienced in spotting for range. Target ship usually informs firing ship when a straddle is obtained.

H. M. S. *Barham*, during recent target practice held off Malta, put a shell through towing ship (*Chrysanthemum*). This was caused by director getting out of step.

Impression was gained that high explosive was used in A. A. projectiles and that experiments were being conducted using gas, not against pilots or observers, but against the plane itself.

"Henderson gear" is used on all guns. This is probably individual stabilization in addition to the stabilized director.

H. M. S. *Emperor of India*, holding A. A. practice, was observed. An A. A. gun fired a projectile which burst, giving off a cloud of dense white smoke. Then a smaller caliber machine gun fired at this white cloud as a target. The bursts of this latter A. A. gun were light brown to black in color, indicating the possibility of their using a high-explosive shell, or perhaps a shell carrying a smoke charge for observation purposes. These shells were fired from a 1-pounder or similar caliber machine gun, judging from the noise of firing and the size of the burst.

Among the destroyers government-built ships can not make their designed speed, and in practice are usually rated from 25 to 30 knots. Thornycroft-built ships usually make designed speed (information is that this speed is 37 knots).

The following items were noticed on H. M. S. *Malaya*:

(a) Boilers were being cleaned, tubes being replaced, and brick-work being repaired. I was told that the cone brick of their B. & W. boilers was not satisfactory for correct atomization. All pumps, including main-feed, service, booster, and F. & B., are in the fire-room which they serve. All auxiliaries are reciprocating-engine driven. The blowers are on the second flat above the fireroom.

(b) In the engine room all auxiliaries are reciprocated-engine driven. Their air pumps have a wet and dry suction for discharge into uniflux condensers. Cuts were being taken off the main air-pump pistons. All pumps were below the floor plates, a man being on watch continually below the floor plates while under way.

(c) The machine shop appeared to be poorly equipped. There are no milling machines or shapers. There were a power-driven grinding wheel, a large and a small lathe, and a drill press. They are boring their own pumps on their large lathe.

(d) The British method of electrical wiring below decks seems to be more satisfactory than ours, due to a fact each lead is separate and leaded. This is a great saving in weight, makes trouble shooting very easy, and is easy to repair, due to the fact that if an open

occurs in their leads only the lead which is open is replaced, while in our wiring if a lead is open it will necessitate a renewal of the complete cable.

Regulations for visiting aircraft carriers are stringent. Each visitor, including British officers, must sign his name in a book and state the purpose of his visit. No cameras are permitted on board.

Repair facilities, Sydney, New South Wales

Garden Island, consisting of a rocky island of about 21 acres in the harbor of Sydney, is regular overhaul yard for the Australian Navy. This yard takes care of all minor repairs, but is not equipped to handle major repairs, which are usually turned over to the Commonwealth dockyard at Cockatoo Island.

The navy maintains on Garden Island the following shops for repairs: Boathouse, sawmill, fitting shop, brass foundry, blacksmith shop, powerhouse, joiners' shop, gun repair shop, torpedo assembly and repair shop, pattern shop, rigging loft, bolt shop, coppersmith shop, machine shop, anchor chain testing shed, paint shop, testing shop, and tool house.

They have a very large three-story storage house well filled with miscellaneous stores valued at £1,000,000. One storehouse carries a large number of boiler tubes for cruisers. Another storehouse carries about 100 18-inch torpedoes and about 15 modern 21-inch torpedoes.

The cruiser *Melbourne* is being overhauled at this yard at present, and is tied up alongside dock under a 150-ton shear legs. The boilers of the *Melbourne* have been retubed during this overhaul.

The machine shop contains one lathe capable of handling material 20 feet in length and about 10 smaller lathes.

Electric power was being taken from Sydney, although there is a small power plant on the island consisting of two fire-tube boilers and reciprocating generators.

In general the yard is only equipped to handle the normal repairs required during overhaul periods on light cruisers and destroyers.

The Commonwealth Government maintains at Cockatoo Island the following shops for repairs and shipbuilding: Platers' shed, frame bending shop, shipwrights' shop, boathouse, sawmill fitting shop, plumbers' shop, sheet-iron shop, galvanizing shop, steel, iron, and brass foundry, blacksmith shop, brass finishing shop, powerhouse, joiners' shop, pattern shop, fitting-out shop, bolt shop, tool store, coppersmiths' shop, rigging loft, testing shop, laboratory,

paint shop, boathouse, electrical shop and laboratory, storehouse, and accessories.

The turbine shop is well equipped and contains modern machines easily adaptable to the construction of large turbines. The turbines for the *Adelaide* were built in this shop and only the raw material and blading was supplied from abroad. There are two 60-ton overhead traveling cranes used to shift material around in this shop. These cranes were hooked together in handling the finished turbines for the *Adelaide*, which weighed about 120 tons. The turbine shop contains one lathe capable of handling material of an overall length of 140 feet about 8 feet in diameter. There is another lathe taking material of a somewhat larger diameter and of 40 feet length. They have about 20 smaller lathes. They have a modern type of balancing machine in the turbine shop.

The steel foundry contains two converters, one of 5-ton capacity and the other of 3-ton capacity. The largest steel casting turned out was 10 tons.

The platers' shed contains a large hydraulic punching machine capable of punching eight simultaneous holes in 1¼-inch plate.

The boiler shop is well equipped and at the time of inspection was assembling large fire-tube boilers. The plates were bent and punched and assembled in this shop.

There are no facilities for the manufacture of plates or the drawing of tubes at the Cockatoo Island plant. During the war some plates were made at the steel plant at Newcastle, but most of them were received from England.

The shipbuilding plant is well equipped to build light cruisers, destroyers, submarines, and cargo ships up to about 12,000-ton displacement. At the time of inspection they were building two light-house tenders of about 700-ton displacement and had just completed a large cargo and passenger ship of 12,000-ton displacement.

In general, practically any kind of repair work can be handled at Cockatoo Island. The plant now employs about 1,200 men, but during the war they employed about 4,500. The plant is not well laid out, shops being added here and there as there was demand for them. The dry docks and ships were checked and correspond with data given in Lloyds. There is practically no room for expansion.

Projected mine defense of Auckland, New Zealand

New Zealand has projected a system of mine defense of Auckland and its approaches. The system has hardly progressed more than the planning stage. Lack of funds and aversion to tying up money

in mine material are the reasons. The territorial forces have listed all available small craft in the vicinity, with the idea of commanding them in case of emergency for sweeping operations. It was also stated that the large trawlers and other fishing vessels of sufficient tonnage would be used for mine laying. On this latter point reticence was shown. Suggestion was made that the approaches were excellent waters for submarine operations; but, at the same time, they would be easy to defend by mines. No information was given on this point except that the Calliope dock and yard was the only shore naval activity around Auckland. In reply to a question as to whether the navy had a mine depot or a projected one, the statement was made that such activities were handled by the territorial government and that a depot was only in the planning stage. There were a few obsolete mines left over from 1918.

During 1924 mining operations were transferred from the army to the navy. The mine field during the war extended from North Head directly across the harbor to the nearest land (almost due east). This field was swept up and all mines were stored at North Head. At the time of the visit they were receiving a supply of 6-inch howitzer ammunition and loading empty mine cases. There were approximately 30 of these cases there then, which are charged with about 100 pounds of guncotton. None of the guncotton had been transferred.

The material was mostly pre-war or war surplus stock. It was stated that plans had been made for extensive mining operations, but it is not believed that they have gotten past the paper stage. From the information I was given I supposed this new naval mine depot consists of small buildings.

The Gibraltar tunnel

The tunnel which extends from the Atlantic to the Mediterranean side of the rock of Gibraltar was visited. We entered on the Mediterranean side, this entrance being approximately 100 yards to the left of steps leading up from officers' swimming beach. It is inclosed by a fence structure and is at all times guarded by armed soldiers. The first noticeable feature is the length and the seemingly perfect line which the tunnel follows. I was told that the length is just short of a mile, yet one end was easily outlined and distinctly seen while standing at the opposite entrance. The floor is flat and the width, as I remember, is about 16 feet. The walls on either side rise perpendicular for a height of 8 or 10 feet, then begin curving inward,

making almost a perfect semicircle overhead, the center of which is about 14 feet above the floor. Railroad tracks run from Mediterranean entrance through to Atlantic side, where it seems they continue on to the street track. The width, I think, was standard, as two of us walked comfortably between the rails. I remember at least one room of fairly good size which is under the tracks, extending either side of the center of the tracks and containing machinery which might be used in repair work. There are very few built-up or reinforced parts to the tunnel; jagged edges of the cut rock are noticeable overhead. The lighting seems inadequate, though many lights may be available. I remember no openings or places of access through bulkheads or overhead. Our exit was made on the Atlantic side, a distance of about 200 yards to the right of the King step landing.

GREECE

RECONSTRUCTION OF DESTROYERS

September, 1925

The recent arrival at Piræus of the Greek destroyer *Panther* marks the completion of a contract secured 18 months ago by Messrs. J. Samuel White & Co. (Ltd.), of East Cowes, for the reconstruction and modernization of four vessels of a similar type. The work carried out on the ships included the remodeling of the hulls, guns, and torpedo armament. All the old machinery was removed, completely overhauled and replaced, and new oil-fired boilers were installed. As a result of these alterations, official speeds on the measured mile of 32½, 32, 31.6, and 31.11 knots were obtained, respectively, by the *Leon*, *Ierax*, *Panther*, and *Aetos*. The contract speed for the first-named three vessels was 30½ knots and for the *Aetos* 30 knots. The Greek Ministry of Marine has expressed appreciation of the work, which has allowed of their acquiring four modern vessels at a moderate cost.

ITALY

MISCELLANEOUS NOTES

September, 1925

Naval review at Augusta, Sicily

On Saturday, 29 August, His Majesty the King reviewed the Italian fleet in the bay of Augusta (Sicily). The formation of the fleet reviewed was as follows:

The battleship *Cavour* (flagship, Rear Admiral of Division Giovannini), followed by the battleships *Doria*, *Cesare*, and *Dante*. The *Cavour* was escorted by the destroyer *Chinotto* and the torpedo boat *Pontiere*.

On the right of the larger units there were the destroyers *Mirabello* (flagship, flotilla leader); first squadron, *Generale Papa*, *Generale Prestinari*, *Generale Cantore*, and *Generale Cascino*; third squadron, *Fabrizi*, *La Farina*, *Medici*, and *La Masa*; fifth squadron, *Poerio*, *Pilo*, *Mosto*, and *Schiaffino*.

On a parallel line there were the light cruisers *Ancona* (flagship, Rear Admiral of Division Monaco di Longano), *Taranto*, *Quarto*, and *Rossarol*. (*Bari* absent, grounded near Castellamare.)

To the left of these there were the destroyers *Aquila* (flagship flotilla leader); second squadron, *Confienza*, *Solferino*, *San Martino*, and *Cosenz*; fourth squadron, *Calatafimi*, *Curtatone*, *Castelfidardo*, and *Monzambano*; sixth squadron, *Pepe*, *Missori*, *Orsini*, and *Ascerbi*.

Finally there followed the submarine squadrons of the *Mocenigo*, *N*, *F*, and *H* groups.

All those who were present at the maneuvers assisted at the review on board the *Savoia* and *Citta di Trieste*. There followed immediately a review of all aircraft which had taken part in the maneuvers.

There was very good attendance. Fifty thousand people from all parts of Sicily came to see the review and cheered enthusiastically.

The naval maneuvers for 1925

On 21 August the King and the Crown Prince, with Signor Mussolini, Minister of Marine ad interim, boarded the new royal yacht *Savoia* at Spezia preparatory to observing the forthcoming naval maneuvers.

General Badoglio, chief of the general staff; Diego Simonetti, vice admiral of the fleet, the Hon. Tittoni, president of the Senate; the Hon. Casertano, president of the Chamber; Rear Admiral Sirianni, Undersecretary of the Navy; General Cavallero, Undersecretary of War; and General Bonzani, Undersecretary of Aviation, with their several staffs, are also on board the *Savoia*.

Observers from the Senate, the Chamber, and the press will embark on board the steamship *Citta di Trieste*.

Red has rendezvoused at Cagliari and Sant'Antioco, in the south coast of Sardegna, whence he will proceed on 23 August to carry out his mission, the seizure and occupation of a base in Sicily.

War will be declared at midnight, 23 August.

Blue is concentrated to the eastward of Sicily. He is authorized to start scouting operations 20 August. In addition to his surface, subsurface, and heavier-than-air forces, he will have under his command the airship *Esperia* (ex-*Bodensee*).

As the speed of the Red convoy is limited to 7 knots, while Blue is allowed 16, and as the area of the problem is very limited, it is difficult to conceive any other outcome than a triumph for the home forces.

No foreign observers have been invited to witness the maneuvers.

Submarine lost during maneuvers

The submarine *Sebastiano Veniero* is now considered definitely lost. The causes of the loss are unknown, but the following conjecture was made by a vice admiral of the reserve:

The submarine, having spotted an enemy ship, started sinking rapidly. In the haste a fatal imprudence must have been committed—the tubes emitting air from the accumulators (storage batteries) were probably not closed.

Water entered as soon as the submarine was under the surface, and the accumulators instantly became useless. The submarine was thus deprived of light and power. The men at once rushed to the water-tight compartments to effect repairs, but fell victims to the poisonous gases developed by the accumulators when brought into contact with sea water.

The submarine therefore continued sinking. One of two things must have happened then: (1) Either the sea water, overpowering the slight resistance of the air tubes, flooded the ship, thus balancing the external pressure and allowing the submarine to alight unharmed at the bottom of the sea; (2) or else, granting that the submarine resisted and that the water did not enter the submarine, it must have been crushed by the ever-increasing external pressure.

Turret accident on Italian battleship

The recent accident on the battleship *Caio Duillio* occurred while the ship was holding some special firing test and she was using only the center gun of No. 3 turret (center turret). This gun had already fired 19 rounds and the turret crew had started to fire the twentieth and last round when in hoisting the powder bags in the upper hoist one section caught fire and exploded, detonating the rest of the charge. The car of the upper hoist was nearly at the top of its travel, and the explosion caused bad burns and injuries to the personnel in the gun-working chamber. The officer in charge of the turret was also slightly burned. The personnel killed, however, were those on duty in the upper handling room directly under the hoist. It appears that some of the safety doors were not shut as

prescribed, as this was the last charge to be sent up, and the men were getting ready to come up out of the handling room. Immediately the accident happened. No. 3 magazine was flooded, but the personnel in attempting to escape opened a door leading into a passageway and this created a strong draft so that a tongue of flame penetrated into the magazine. This was witnessed by a man in the magazine standing in a corner out of the draft, who was not injured, whereas the men escaping out the door had the backs of their clothing burned off.

It has been definitely ascertained that the explosion was caused by friction on the rear end of one section of the charge which slipped back on its cradle in the ammunition hoist and rubbed against the fixed structure of the turret while the car was being hoisted, the heat generated being sufficient to ignite the black powder ignition charge. The board of investigation found that the charge had been properly put in the hoist, but that, due to wear through frequent use and a mechanical defect in the car cradle, the cradle became so inclined that the charge would slip to the rear by itself. Necessary modifications to the hoist car cradle were immediately made and the slight damages to the hoist and turret were repaired and in four days the ship was again on the range continuing her experimental firing. It is understood that this firing was in connection with night work and that tracer ammunition was being used.

Destroyer "Francesco Crispi" launched

On September 12 the new destroyer *Francesco Crispi* was successfully launched at Naples in the Pattison yards. Assisting in the ceremony were the Royal Commissario of Naples, Signor Boccardella, Admiral Nicastro, General Cicconetti, Senators Spirito and Angiulli, many members of Parliament, and other notabilities. There assisted also the Minister Belluzzo, who is the inventor of the Belluzzo type of turbines, with which the *Francesco Crispi* is equipped.

The torpedo boats *Carabiniere*, *Calliope*, and *Strale* (ex-*Euro*) have been stricken from the list.

The tug *N-84* (ex-*T-57*) is stricken off the list.

The auxiliary ships *Garigliano* and *Galileo* are also stricken off the list.

The second-class auxiliary ships *Luigi Mina*, *Umberto Missana*, *Cunfida*, and *Misurata* are stricken off the list.

The names of the royal mine sweepers *Abastro* and *Meteo* are hereby changed into those of *Cotrone* and *Vieste*.

The naval reserve

The reserve of the regular Italian Navy includes no lower deck ratings. There are about 4,700 retired officers subject to call. These are graded as follows:

| | Regular navy reserve | |
|---|-------------------------|--------|
| Line officers : | | |
| Vice admirals..... | 7 | |
| Vice admirals of squadron..... | 35 | |
| Rear admirals of division | 80 | |
| Captains..... | 78 | |
| Commanders..... | 151 | |
| Lieutenant commanders..... | 119 | |
| Lieutenants..... | 628 | |
| Lieutenants (j. g.) and midshipmen..... | 1, 254 | |
| | <hr/> | 2, 352 |
| Engineer officers : | | |
| Inspector lieutenant generals..... | 2 | |
| Vice inspector generals..... | 7 | |
| Colonels..... | 19 | |
| Lieutenant colonels..... | 27 | |
| Majors..... | 205 | |
| Captains..... | 319 | |
| Lieutenants and lieutenants (j. g.)..... | 1, 021 | |
| | <hr/> | 1, 597 |
| Naval constructors : | | |
| Inspector lieutenant generals..... | 4 | |
| Vice inspector generals..... | 7 | |
| Colonels..... | 16 | |
| Lieutenant colonels..... | 19 | |
| Majors..... | 22 | |
| Captains..... | 36 | |
| Lieutenants..... | 33 | |
| | <hr/> | 137 |
| Medical corps : | | |
| Lieutenant generals..... | 2 | |
| Head medical generals (generali medici capi)..... | 12 | |
| Colonels..... | 15 | |
| Lieutenant colonels..... | 43 | |
| Majors..... | 48 | |
| Captains..... | 29 | |
| Lieutenants..... | 2 | |
| | <hr/> | 151 |
| Military chaplains : | | |
| Majors..... | 1 | |
| Captains | 6 | |
| | <hr/> | 7 |

| Pay corps: | Regular navy reserve |
|---|-------------------------|
| Lieutenant generals----- | 2 |
| Head pay corps generals (generali commissari capi)----- | 8 |
| Colonels----- | 9 |
| Lieutenant colonels----- | 45 |
| Majors----- | 50 |
| Captains----- | 39 |
| Lieutenants----- | 3 |
| Lieutenants (j. g.)----- | 5 |
| | <hr/> 161 |
| Corps of port captains (harbor masters): | |
| Generals----- | 5 |
| Colonels----- | 5 |
| Lieutenant colonels----- | 18 |
| Majors----- | 6 |
| Captains----- | 12 |
| Lieutenants----- | 1 |
| | <hr/> 47 |
| Corpo reali equipaggi (officers risen from the ranks): | |
| Captains----- | 52 |
| Lieutenants----- | 95 |
| Lieutenants (j. g.)----- | 168 |
| | <hr/> 315 |
| Superior counselors of the navy (first class): | |
| Rear admirals----- | 4 |
| | <hr/> |
| Total of officers in the naval reserve----- | 4, 771 |

As to enlisted men, once a year harbor masters (port captains=*capitani di porto*) make out a list of men subject to levy, who, according to the year of their birth, are due to be called up to serve 2½ years in the navy. When they return to civil life they may be called to the colors up to the age of 32, after which men belonging to the *Corpo Reali Equipaggi* (this corps comprises all the enlisted men and petty officers of the navy, besides officers risen from the ranks) are by law transferred to the army (excepting warrant officers).

About 60,000 men are subject to such call.

There is no merchant reserve as distinct from the naval reserve.

The Asso 500-horsepower aviation engine

The first two of these engines completed 150 hours' block test, with results so gratifying that they are now being overhauled and prepared for installation in an *S-55* type seaplane for the use of Signor Cassagrande on his proposed flight from Italy to South America. The third Asso engine was running on the test stand at the time of a visit to the Isotta Fraschini factory, on August 20, 1925. Ten of

these engines have been ordered by the Italian Government and it is reported that negotiations are now in progress for a contract for 50 additional. The contract price for the first 10 of these engines is approximately 100,000 lire each.

Principal characteristics.—Bore=140 mm.; stroke=150 mm.; cylinders=12—60° V.; total cylinder displacement, 28,125 liters; compression ratio, 5.3/1; r. p. m. (normal), 1,800; at 1,600 r. p. m.=460 h. p.; at 1,700 r. p. m.=484 h. p.; at 1,800 r. p. m.=506 h. p.; at 1,900 r. p. m.=526 h. p.; guaranteed B. h. p. at 1,800=490 (air type brake); gas consumption at full power per h. p./hour=215–220 gr.; oil consumption at full power per h. p./hour=10–15 gr.; weight (ready to function and including propeller hub)=420 kilos.

Description of engine

Cylinders.—The cylinders are of forged carbon steel, all separated one from the other. Water jackets are autogenous welded to the cylinders. The cylinder head is detachable and fitted to the cylinder bodies by means of screws and bolts. It carries the intake and exhaust valves. The cylinder head has four additional openings, two for the spark plugs, one for the compressed-air valve for starting the engine, and the fourth for eventual application.

Cylinder head.—The cylinder head is cast aluminum, one block for a bank of six cylinders. To facilitate casting the cylinder head is divided into two parts, one for each group of three cylinders, the parts being bolted together.

The cooling water is admitted at the bottom of the water jacket of each cylinder. From there it flows to the cylinder head through six small holes. Tightness between cylinder and cylinder head is insured by small brass nipples fitted both into the holes of the cylinder head and those of the water jacket. Gaskets or packing of special composition surround the brass nipples, one for each hole, insuring water tightness. The position of the six holes has been studied in order to insure perfect cooling in the hottest points of the cylinders and cylinder head.

The cylinder head carries the valves and also serves the purpose of conducting the exhaust gases to the open air and to admit the gas mixture to the valve. Finally it serves as a housing for the cam shaft. The top part of the cylinder head has a cover for inspection of the cam shaft and valve stems.

The exhaust gas pipes project outward from each bank of cylinders.

The crank case is of cast aluminum or of very light special material (electron) and is divided into four parts. The upper part

serves as a base for the cylinders, as a support for the crank shaft, and as a guide for the distribution gearing. The central part, joined to the upper part, serves as a support for the crank shaft, for the oil pump, and the water pump. The lower part serves as oil collector and also for heating the air going to the carburetors and cooling the circulating oil. The front central part, fixed between the upper and central parts of the crank case, includes the magneto, gasoline pump, and compressed-air controls, and serves as support for the magnetos.

Engine distribution.—Each cylinder is fitted with two intake and two exhaust valves of the same dimensions. The object of the double valve is not merely to increase the section of passage of the gas mixture but also to reduce their work and to distribute the heat in the cylinder head in the best possible manner.

The valves are operated by two cam shafts for each bank of cylinders. One cam shaft operates the intake valves and the other the exhaust valves. Between the cam shaft and the valves there are two levers, one for each couple of intake valves or exhaust valves of the same cylinder, which transmit to the valves the opening stroke effected by the cam. The cam shafts are operated by the crank shaft by means of two vertical shafts—one for each bank of cylinders. These shafts, in turn, receive the movement by means of a vertical intermediate shaft located between the shafts themselves and the crank shaft.

Each valve is forced back onto its seat by means of two concentric springs. The complete valve-operating system is inclosed in a special cover for protection and satisfactory lubrication.

Crank shaft.—The crank shaft is supported by eight bearings; a thrust ball bearing is located between the seventh and the eighth bearings. All bearings are located between the upper and central parts of the crank case. The eighth bearing is close to the propeller hub.

Connecting rods.—The two cylinder banks form an angle of 60° . The connecting rods have an I section and are of the “master and shorter rod” types.

Pistons are of a very light special aluminum alloy.

Ignition is effected by two Marelli magnetos, each of which is connected to the 12 cylinders so that each cylinder receives two sparks. The magnetos are operated by means of an elastic joint, so that adjustment may be made as required. A hand lever operated by the pilot advances simultaneously the spark of both magnetos.

The engine is equipped with four carburetors. Several types were tried out but preference was finally given to the Zenith. The carburetors are located two on each side of the engine in correspondence with the second and fifth cylinder of each bank. Consequently

they are easy of access and inspection. The intake pipes from the carburetor to the different cylinders are incorporated in the cylinder head, as stated above, so that they are heated by the circulating water. The air taken in by the carburetors is heated by passing through the double wall of the lower part of the crank case, as stated above.

Lubrication is insured by means of a gear pump. Oil is forced to all parts of the engine. There is only one external piping for conducting the oil to the cylinder head. The oil is filtered to the oil well and then purified by a centrifugal separator.

Water circulation is insured by means of a centrifugal pump, double-action.

The engine is started by means of compressed air and of a distributor operated by the engine itself. The compressed-air cylinder may be charged either instantaneously for each start by means of an explosive cartridge or by a hand air pump. A pressure of 6 atmospheres in the compressed-air cylinder is sufficient to start the engine, even if cold. In order to facilitate starting, the intake pipes are charged with gas mixture.

Accessory devices.—The engine is fitted with a control for two gas pumps, and also with controls for machine-gun synchronization boxes, and for installing the tachometer.

New bombardment plane Ca-80

The new experimental bombardment plane *Ca-80*, built by the Caproni Co., is a development of the *LB-4*, and has been designated the *Ca-80* instead of the *LB-2* as previously given out. An order has been placed for an experimental squadron of six *Ca-80*'s for service trials. Also it is understood that trials will be conducted with two Lorraine-Dietrich 400 horsepower, and with two Asso 500-550 horsepower engines instead of the two Bristol-Jupiter engines at present installed. A high authority in the Italian Air Service states that this machine will be adopted as the service type for night bombardment.

According to press reports of trials already conducted, the performance of this machine, with the two Bristol-Jupiter engines, is as follows:

| | | |
|---------------------------|------------------|-------|
| Weight of machine----- | pounds-- | 6,380 |
| Useful load (normal)----- | do----- | 4,180 |
| Maximum speed----- | miles per hour-- | 109 |

| | | | |
|----------------------------------|--|----|----|
| Climb (useful load not stated) : | | ' | '' |
| To 1,000 meters— 3,280 feet----- | | 5 | 35 |
| To 2,000 meters— 6,560 feet----- | | 12 | 55 |
| To 3,000 meters— 9,842 feet----- | | 21 | 00 |
| To 4,000 meters—13,122 feet----- | | 32 | 10 |
| To 5,000 meters—16,403 feet----- | | 41 | 00 |

Maximum possible useful load=8,100.

Climbs to 2,000 meters (6,560 feet) with useful load of 7,260 pounds.

With only one engine climbs to 1,000 meters (3,280 feet) with useful load of 3,080 pounds.

Proposed propaganda flight to South America

It is understood that Premier Mussolini has approved of a proposed propaganda flight under the command of Signor Casagrande to South America. An *S-55* seaplane, equipped with two Asso 500-horsepower engines, will be used. The detailed itinerary is not known at present, but it is understood that the route will be down the west coast of Africa, then across the Atlantic to Brazil, and then down the coast of South America. It is also reported that, in case all conditions are satisfactory, this expedition may proceed from South America to New York, and thence back to Italy (route unknown).

Signor Casagrande is now a Fascista deputy. During the World War he was an officer in the Italian Air Service, and is a gold-medal man. Signor Casagrande will be accompanied on his proposed flight by two other pilots, a motorist, and a radio operator. It is expected that the start will be made some time during the latter part of September, 1925.

Italian airship for polar expedition

Captain Amundsen has purchased the Italian semirigid airship *N-I* (18,500 cubic meters=653,400 cubic feet) for use in exploring the north polar region next spring or early summer. The contract (signed by Premier Mussolini and Captain Amundsen on September 2) provides that 50 per cent of the crew of the airship during the expedition will be Italians, although she will operate under the Norwegian flag and the expedition will be made under the auspices of the Norwegian Aero Club. The purchase price is not known.

It is stated that a mooring mast will be erected at Spitzbergen, where the *N-I* will base during the polar operations. A number of modifications are to be made to the *N-I*, the principal ones being to fit her for mooring to a mooring mast, and to lighten her as much as possible by the removal of all fittings not required for the polar expedition.

Italian cable between Canary and Cape Verde Islands

The *Citta di Milano* has recently effected the junction of the two ends of the cable between the Canary and Cape Verde Islands; 13,000 kilometers of cable have thus been laid by the Italian company of telegraphic cables between Italy and Argentina. This cable starts from Anzio (near Rome) and then passes by Malaga (Spain), Las Palmas (Canary Islands), San Vincenzo (Cape Verde Islands), the island of Fernando de Naronha (near Brazil), Rio de Janeiro (Brazil), Montevideo (Uruguay), and ends at Buenos Aires.

The Italian cable system, which was barely 6,000 kilometers in length before laying of the Italcable cables, now attains with the two new American lines about 22,000 kilometers.

Italian attachés abroad

This decree cancels all previous regulations on the subject:

The Ministries of War and Marine and the Commissariat of Aeronautics, in accord with the Ministries for Foreign Affairs and Finance, will detail to Italy's diplomatic missions abroad officers, respectively, of the army, navy, and air force to act as military, naval, and air attachés.

The posts of air attachés may be assigned to civilian employees of the Commissariat of Aeronautics.

The following are the maximum numbers of attachés established: Military, 20; naval, 20; air, 8.

The particular duties of the various attachés and their pay shall be prescribed by regulations issued by the ministry concerned after collaboration with the Ministry for Foreign Affairs.

Each attaché may take with him a soldier (or enlisted man) or a petty officer acting as secretary. The attaché's secretary may, however, be a civilian either belonging to the Italian civil service or taken on by the attaché in the country where he is detailed. The secretary's pay must not be higher than that of the highest grade of petty officer in the service concerned.

A decree of the Ministry for Finance will make the necessary alterations in the appropriations under this heading in the budgets of the Ministries of Foreign Affairs, War, Marine, and Commissariat of Aeronautics.

Italy and the revolt of the Druses

Italy's interest in Islamic developments is naturally very keen, and the following article from the *Idea Nazionale*, Government organ, is a good indication of Italian official opinion:

For a long time we Italians have been insisting upon and calling attention to the necessity for a combined European front for defense against the Islamic wave which has for its object the reconquest of the eastern and western shores of the Mediterranean. But the powers who gained much in the Orient and Africa through the peace of Versailles have, in their egoism, overlooked the opinion of Italy, which ought to be given great consideration because of her extreme sensitiveness on this subject by virtue of her general interests in the Mediterranean. Italy has been unheeded by England, who has been too busy occupying herself exclusively with strengthening her domestic situation and who has so far held herself aloof from the insurrections which have been directed against her. Italy has also been unheeded by France, who displays her customary rigid policy in Mediterranean affairs, clearly demonstrated by her unwillingness to solve the Italian problem in Tunis and by the anti-Spanish policy which France has followed in Morocco for over three years. This policy has not only acted as a boomerang, greatly extending the regions of conflict, but has created on the Atlantic shore a problem which is no longer African alone, but which has become international.

Likewise, in Syria France is reaping to-day the fruits of an isolated and selfish policy, but it must be realized that the actual situation in these regions was provoked by English intrigue, which seems confirmed by the arrival in London of the Emir Faisal, evidently to furnish particulars for England's attitude toward the revolt of the Druses. Is the supposition becoming a reality that the revolt itself is nothing more than a violent evidence of the desire of England and of the Arabs to create other pseudo-independent States in the Arabic world? We do not know. We limit ourselves to saying again that the inability of occidentals to agree among themselves is provoking now in Syria the violent reappearance of pan-Islamic agitation, more than ever evident to-day, while the entire oriental world is watching the fate of Abd-el-Krim. Will the present circumstances convince France of the impossibility of continuing on this road of absolute self-centeredness? We doubt it very strongly because it is hard to convince the powers which have African possessions of the truth of what we have said for a long time. This point of view, which until yesterday was one for discussion, has now been confirmed by realities.

Russo-Italian Relations and the Anti-European Propaganda of the Soviet

The following statement of Francesco Coppola, Italian representative to the League of Nations, is interesting in view of the rather insistent reports of Italian Soviet rapprochement:

Bolshevik Russia, completely dedicated to her oriental mission, is shaking the world domination of the Occident. Russia, communistic and Asiatic, is doubly anti-European.

The warlike proclamations from the highlands of Pamir to the "oppressed people" of Asia for the nationalistic social revolution; the enormous propaganda in India in accord with the Swaraj; the communistic plots in Manabendra; the attempts of resistance under Gandi; the encouragement of the Afghan uprising; the assiduous incitation of the people of Persia against Britain, instigating at the same time the assassination of the American consul; the infiltration of revolutionary propaganda into the whole Arab world, into Mesopotamia, Palestine, and Syria; the noisy denunciation of "English tyranny" in Egypt and the incitation of Egyptian nationalists; the preparations for communistic risings in Tunis; and, finally, the help given in officers, arms, and money to Abd-el-Krim.

JAPAN

NAVAL AVIATION

October 1, 1925

[Compiled by O. N. I.]

Naval aviation in Japan is organized on lines very similar to those in the United States Navy except that there is no Bureau of Aeronautics. In December, 1920, an air board was formed. It was composed of high ranking officers in both the military and naval service. The purpose of the board was to consider a future air organization for Japan. Great Britain had gone to the united air service under the name of the Royal Air Force. There was a group in Japan who wished to build a similar organization.

The board just referred to considered three general plans of organization :

(a) To have under one general planning division, three permanent, noninterchangeable air services, namely, army, navy and commercial.

(b) To have under one general planning division, three permanent military services, namely, army, navy, and coast defense. Commercial aviation was not included in this plan.

(c) To have one air service. The personnel of this service to be independent from the army and navy, and to form a third military service. Under this scheme, the aviation department alone was to be responsible for the equipping and training of the air force. It was to detail to the army and navy and commercial work such aviation units and personnel as it saw fit.

None of these plans was decided upon, and, as before stated, the final air organization adopted in Japan is one very similar to that of the United States. It became apparent to the Japanese Navy that in order to work successfully with the fleet, aviation personnel had to be taken from the fleet. That aviation at sea was a special business. That the various phases of future contacts between fleets involved such highly technical sea air work as reconnaissance under all conditions of weather day and night prior to battle; gunnery spotting and range control for own fleet in battle; torpedo attack; bombing attacks; laying of smoke screens; offensive and defensive air fighting. That the mistake of an air observer during darkness or haze in regard to the identity of a vessel or vessels might very readily be the deciding factor in defeat.

The Japanese also realized that under the most probable conditions of war, the Japanese fleet would be the first line of attack and the first

line of defense. That air information and tactics would be dependent upon units of the fleet, in many cases at advanced points or bases, and that complete fleet coordination and control was essential.

The above factors, combined with the evident failure of a united air service to give satisfaction to the British Navy, are believed to have settled Japan in her present air policy.

JAPANESE NAVAL AIR STRENGTH

(1) The Japanese naval air force policy, which was formulated several years ago, is briefly expressed below:

(a) First step: (1) Establishment of permanent land and naval air operating and training stations.

(2) Purchase abroad of training land and sea planes and of the best types of service planes and equipment that could be obtained.

(3) Recruiting and training of personnel for the air force.

(b) Second step: (1) Establishment of factories with personnel capable of building aircraft and motors of standard foreign design.

(2) Training and development of technical personnel capable of designing aircraft suitable for the defense of Japan.

(c) Third step: (1) Production of aircraft and motors of standard design.

(2) Designing and building experimental aircraft of Japanese design.

(3) Obtaining experimental airplane and seaplane carriers.

(d) Fourth step. (1) Determination of types of aircraft to be used on board ships with necessary stowage and handling equipment.

(2) Building of modern aircraft carriers.

(e) Fifth step: (1) Purchase abroad of best obtainable types of aircraft and motors with manufacturing rights.

(2) Quantity production of the types purchased above.

(3) Gradual scrapping of existing aircraft and replacement by aircraft as produced above.

(f) Sixth step: (1) Production of own design aircraft and motors.

(2) In the pursuit of the above policy Japan has progressed as follows:

(a) Practically completed four permanent naval air stations at Kasumigaura, Oppama, Sasebo, and Omura.

(b) Acquired a nucleus air force personnel.

(c) Established factories which have produced most of the aircraft and motors of foreign design necessary for the development of air force personnel.

(d) Completed two experimental aircraft carriers, *Hosho* and *Wakamiya*.

(e) Purchased several types with production rights of comparatively modern aircraft (Rohrbach seaplane and Fairey pintail amphibian).

(f) Purchased production rights for Lorraine Dietrich 400-horsepower engine and Hispano-Suiza engine, Le Rhone engine, and Salmson engine.

(g) Have commenced production of Rohrbach metal seaplane at Hiro naval arsenal.

(h) Have purchased large quantities of duralumin from Germany and England, together with the German formula, so that the production of this alloy could be commenced in Japan.

(i) Have commenced production of duralumin in Japan.

(j) Have about 50 per cent completed the modern aircraft carriers *Kaga* and *Akagi*.

(k) Installed hangar and launching platform on 10 light cruisers.

(l) Have failed to produce any aircraft or motors of Japanese design of any value whatsoever.

(m) Have made practically no progress in using aircraft with the fleet, especially in aircraft fire control.

(n) Has developed an air force personnel which, compared to the United States Naval Air Service, may be rated as having fair ability as pilots, but which can only be rated as poor in general all-around efficiency.

(3) Air stations:

(a) Kasumigaura. Primary training station. Service operating station with dirigible, land plane, and seaplane units. An excellent, well laid out and equipped central training station with permanent hangars, shops, and other necessary buildings. Has hangar space for 168 pursuit type and sixty-two 50-foot seaplanes. Hangars now house total of 82 planes. Has expansion facilities for training as many recruits for the naval air force as may be necessary. Has large four-way flying field.

(b) Oppama. Advanced training station: operating station with land plane, seaplane, and balloon units. Shore base and training station for fleet air force. Has hangar space for eighty 50-foot seaplanes and 42 pursuit type land planes. Hangars now house total of 40 planes of various types. Has moderate size landing field. Permanent hangars for land and sea plane units. Land airdromes can be expanded readily. Seaplane station can be expanded only at considerable expense.

(c) Sasebo. Small operating seaplane station for coast patrol. Of small military value at present. Permanent hangars, small landing field. Station capable of expansion at great expense.

Hangar space for 40 pursuit type planes and storage space for 40 additional.

(d) Omura. Operating land type pursuit station. Small military value at present. Permanent hangars, moderate size land field. Hangar space for 46 pursuit type and six 50-foot seaplanes.

4. Table of all planes now located at air stations:

| Total | Types | Kasumi-gaura | Hosho | Op-pama | Sasebo | Omura |
|-------|--|--------------|-------|---------|--------|-----------------|
| 32 | Avros. Land and sea primary training..... | 32 | | | | |
| 48 | Mitsubishi No. 1. Land type pursuit, deck landing.... | 6 | 4 | 4 | | ¹ 34 |
| 28 | Mitsubishi No. 2. Land type observation, deck landing.... | 22 | 6 | | | |
| 8 | Mitsubishi No. 4. Land type bombing, deck landing. Torpedo plane..... | | 4 | 4 | | |
| 21 | Yokosuka. Small radius, seaplane scouts..... | 6 | | 3 | 12 | |
| 19 | Hansa. Small radius, seaplane scouts and light bombing..... | 7 | | 2 | 10 | |
| 4 | Viking. Amphibian, medium radius, reconnaissance..... | 4 | | | | |
| 4 | Seal. Amphibian, medium radius, reconnaissance..... | 4 | | | | |
| 24 | F-5. Flying boat, medium radius, reconnaissance..... | | | 8 | 16 | |
| 2 | Rohrbach. Seaplane, large radius, scout..... | | | 2 | | |
| 3 | Pintails. Amphibian, fleet reconnaissance, fire control, deck landing..... | | | 3 | | |
| 193 | Total..... | 81 | 14 | 26 | 38 | 34 |

¹ 10 of these are in storage at Sasebo Air Station.

NOTE.—It may be stated here that the official navy department statement that the navy possesses 400 planes of all types is believed to be a gross exaggeration, and that in addition to the 194 planes enumerated above the navy department may have possibly 50 more in various places being repaired, making a maximum total of 243 planes, of which practically all are of an obsolete type, as shown in the following paragraphs.

(5) Of all the types of aircraft now in the possession of the Japanese Navy Department only the Rohrbach metal seaplane can be considered as a modern type of high military value. The Fairey pintail is a well-known foreign type and, next to the Rohrbach seaplane, is a type far superior to the remainder of the Japanese aircraft. The Mitsubishi *No. 1* pursuit plane is about equal in value to the U. S. *MB-3*. The Mitsubishi *No. 2* observation plane compares unfavorably with the U. S. *DH-4B*. The Mitsubishi *No. 4* bombing compares with the United States old-type Martin bomber. Hansa seaplane is an obsolete type of negligible value. Yokosuka seaplane compares in value to the 1914 United States Martin twin-float seaplane. *F-5* boats as made by Japan are inferior to the original Short boats purchased from England, due to heavy hull.

(7) Latest developments in aircraft and engines:

(a) Nine Rohrbach metal twin-float two-engined monoplanes purchased from Denmark (three now in Japan). The Japanese Navy has purchased rights to build this plane and production has been started at the Hiro Naval Aircraft Factory. This seaplane will replace the *F-5* type, manufacture of which has been discontinued.

Mr. Rohrbach has stated that seven of his planes as ordered by Japan are an improved type, the improvements consisting mainly of lighter weight and an improved cruiser bow. The first two machines of the older type weigh 4,000 kilograms loaded, the new type 3,650 kilograms. Equipment, Telefunken radio and telephone. Day radius, radio 1,000 kilometers, telephone 350 kilometers, two Rolls Royce Eagle IX engines, gasoline for 10 hours cruising and 8 hours full speed.

(b) The Japanese Navy Department has purchased rights to manufacture the Fairey pintail amphibian. Place of manufacture unknown.

(c) The Japanese Navy Department is negotiating with a representative of the D. Napier & Son (Ltd.), of London, for the rights to manufacture the Napier Lion 450-horsepower engine. This engine will probably be manufactured at the Hiro naval aircraft factory in place of the 400-horsepower Lorraine Dietrich, which has not proved successful as used in the *F-5* boat.

(d) The navy aircraft experimental and repair factory at Nagaura is building an experimental metal monoplane.

(e) The aircraft department of the Kawasaki Dock Yard Co., Kobe, has in its possession five types of Dornier metal planes, the *Wal*, the *Komet*, the *Falke*, the *Libelle*, and *Delphin*. The *Wal* is fitted with two 300-horsepower B.M.W. engines and the *Komet* with one 300-horsepower B.M.W. engine. This company has purchased the manufacturing rights of these planes and it seems probable that some of these types may be adopted by the army or navy, particularly the *Falke* and the *Komet*.

(f) Doctor Rohrbach has stated that he is now designing a fighting metal monoplane, and it seems probable that the Japanese Navy will purchase this plane, if successful, and attempt its production in Japan to replace the obsolescent Mitsubishi No. 1 pursuit plane.

8. Aircraft factories. Mitsubishi Internal Combustion Engine Co., Nagoya:

(a) Product: (1) Aircraft—Mitsubishi No. 1, No. 2, and No. 4. Normal production at the rate of 120 Mitsubishi No. 4 per year. Maximum production, 170 Mitsubishi No. 4 per year.

(2) Motors—Hispano Suiza, 200 horsepower and 300 horsepower. Normal production, 240 Hispano Suiza 300-horsepower motors per year. Maximum production, 450 Hispano Suiza 300 horsepower per year.

Aichi Chronometer & Electrical Co., Nagoya:

(a) Product: (1) Aircraft—Hansa monoplane seaplanes.

(2) Motors—None. Normal production at the rate of 120 Hansa seaplanes per year. Maximum production at the rate of 150 Hansa seaplanes per year.

Tokyo Gas & Electrical Supply Co., Omori:

(a) Product: (1) Aircraft—None.

(2) Motors—Le Rhone, 80 horsepower and 120 horsepower. Normal production, 90 to 120 horsepower Le Rhone motors per year. Maximum production, 360 of 120-horsepower Le Rhone motors per year.

Kawasaki Dockyard Co. (aircraft department), Kobe:

(a) Product: (1) Aircraft—Salmson training and service airplanes and probably Dornier metal planes. Normal production, 120 Salmson planes per year. Maximum production, 170 Salmson planes per year.

(2) Motors—Salmson, 230 horsepower. Normal production, 120 Salmson 230-horsepower motors per year. Maximum production, 250 Salmson 230-horsepower motors per year.

Nakajima Airplane Factory, Ota:

(a) Product: (1) Aircraft—Hansa seaplanes and 29 C. I. Nieuports. Normal production, 75 Hansa or Nieuport type planes per year. Maximum production, 120 Hansa type seaplanes per year.

Motors—None.

Hiro Naval Aircraft Factory:

(a) Product: (1) Aircraft—Rohrbach metal monoplane seaplanes. Normal production, 6 Rohrbach planes per year. Maximum production, 15 Rohrbach planes per year.

(2) Motors—Did manufacture 400-horsepower Lorraine Dietrich. Believed that no motors at present being manufactured. Will probably manufacture 450-horsepower Napier Lion. Normal production, 120 motors of 400 horsepower per year. Maximum production, 200 motors of 400 horsepower per year.

Aircraft department of Yokosuka Navy Yard at Nagaura:

(a) Product: (1) Aircraft—Experimental metal plane. This factory at present does only assembly experimental and major repair work.

(2) Motors—None.

(9) Aviation personnel:

OFFICERS

| | Kasumi- gaura | Oppama | Sasebo | Omura | Hosho | Waka- miya | Total |
|---------------------|------------------|--------|--------|-------|-------|---------------|-------|
| Pilots..... | 20 | 13 | 10 | 10 | 4 | 5 | 63 |
| Administration..... | 18 | 20 | 6 | 6 | ----- | ----- | 50 |
| Engineers..... | 16 | 5 | 5 | 3 | 1 | 1 | 31 |

ENLISTED MEN

| | Kasumi- gaura | Oppama | Sasebo | Omura |
|---------------------------|------------------|--------|--------|-------|
| Pilots..... | 10 | 20 | 20 | 10 |
| Mechanics and ground..... | 1,300 | 600 | 300 | 200 |

UNDER INSTRUCTION

Kasumigaura :

| | |
|-------------------------|-----|
| Officer pilots..... | 12 |
| Officer engineers..... | 20 |
| Officer observers..... | 30 |
| Enlisted pilots..... | 20 |
| Enlisted mechanics..... | 100 |

NOTE.—The above figures were obtained by observation and from statements made by officers at the naval air stations. It is believed that the official navy department official figures of February 9 (total officers 483, total men 3,653, officer pilots 124, enlisted pilots 200) are greatly exaggerated. It may be stated here that the aviation enlisted personnel as observed at the naval air stations are smart, well disciplined, and well trained. The mechanics and riggers appear to be quite efficient, judging by the well-kept appearance of all planes and motors seen.

(10) Lighter than air. One *Astra* type dirigible is stationed at Kasumigaura and this is now the sole dirigible in the Japanese Navy. One *SS* type dirigible is now out of commission for reasons unknown. The Japanese Navy Department has officially stated that it possesses six balloons. One of these was seen at Oppama and is shore based. The officer lighter-than-air personnel, as obtained from the Japanese Naval Register of February 1, 1925, consists of two officers. Ground enlisted force for lighter than air is included in the heavier-than-air personnel.

(11) The Japanese Naval Air Force when considered as a fleet unit can without doubt be stated to possess a very low military value. The planes are obsolete or obsolescent, there are no evidences that planes are maintained on board or operated from capital ships, cruisers, destroyers, submarines or plane carriers. There is very little evidence that planes are used in connection with fleet fire control. Radio sets are rarely to be seen installed in service planes. No deck landing gear appears to have been developed. No planes are equipped with any devices to assist in deck landing. The carrier *Hosho's* aviation personnel and planes are shore based and trained at Oppama land airdrome. A wooden platform the size of the *Hosho* deck space is laid out on the flying field at Oppama and used for simulated deck landing. The furthest developed branch of naval aviation is the torpedo plane unit at Oppama which carries out frequent practice dropping torpedoes on the Oppama torpedo range. They have no organization at present for an afloat fleet aviation force.

(12) When considered as a unit for land defense with operating radius of 150 miles from shore the Japanese Naval Air Force pos-

sesses fair military value but far below the military value of the United States Naval Air Force. Successful distance flying is very rarely accomplished; night flying is seldom engaged in and is considered very difficult. The pilots can be classed as fair to good but none excellent; formation flying is fair. It will be many years before the Japanese Naval Aviation Force can compare favorably with that of the United States.

| Item | Japanese aviation | |
|---|------------------------|-------------------|
| | Army | Navy |
| Unit of organization..... | Squadron..... | Squadron. |
| Total number of units..... | 20..... | 12. |
| Number aircraft per unit..... | 10 or 12..... | 16. |
| Units at home..... | 17..... | 12. |
| Units abroad..... | 3..... | None. |
| Number aircraft in commission, exclusive of training..... | 400..... | 148. |
| Number aircraft in reserve..... | Not known..... | 305. |
| Total officer personnel..... | 590..... | 250. |
| Total flying officers in above..... | 403 ¹ | 150. ¹ |
| Enlisted men, air service..... | 3,100..... | 2,460. |
| Enlisted pilots..... | Not known..... | 100. ¹ |

¹ Estimated.

JAPAN

ARMY AVIATION AND ANTI-AIRCRAFT ARTILLERY

October 1, 1925

[Compiled by O. N. I.]

1. Present organization, any tendencies to change, any reactions against it, for both aviation and antiaircraft artillery:

a. Aviation—

- (1) The army air service became an independent arm on May 1, 1925. The Air Directorate became aviation (air service) headquarters on the same date. The aviation headquarters of the army is divided into four sections—a general section, a technical section, a supply section, and an inspection section. These headquarters are responsible for aeronautical experiment and research, for the instruction of air-service troops in everything that relates to aviation, for the standardization of equipment, and for the supply of aviation matériel.
- (2) A lieutenant general is chief of the air service. Four major generals and 130 other officers are (or are to be) on duty in the aviation headquarters.

- (3) The three aviation schools, the eight service regiments, and the two balloon companies are under the control of the aviation headquarters in everything relating to technical supplies and technical training. The service units are under the control of the division commanders in all that relates to ordinary military training and administration.
- (4) On April 30, 1925, the army air service consisted of six battalions (groups), having a total of 16 companies (squadrons).
- (5) On May 1, 1925, the six existing battalions were changed into regiments, and the creation of two additional regiments was officially announced. The change from battalion to regiment so far has been a change in name only. The two regiments whose organization was officially announced on May 1 are to be completed by April 1, 1929 (or 1930). On June 1, 1925, there were reported 20 companies, as follows: Observation, 11; pursuit, 6; bombing, 1; others, 2. A total of 35 companies is planned for April 1, 1930.
- (6) Under the new organization it appears that each regiment will have two battalions, and each battalion two companies. A company is to have 12 pursuit or 10 observation planes, and apparently 6 officers and 144 men; about 8 pilots, either commissioned or noncommissioned, are provided each company. It is probable that all regiments, except the seventh, which is to be a bombing unit, will be composite units, having both observation and pursuit squadrons.

b. Antiaircraft artillery—

Prior to May 1, 1925, two or three antiaircraft batteries had been established at the field artillery school. Two antiaircraft battalions are provided for in the army reorganization and modernization program approved by the Diet in March, 1925. Each battalion is to have three batteries, and each battery four 7.5 c. m. guns. The first antiaircraft was officially established at the field artillery school on May 1, 1925, and trans-

ferred to Toyohashi on May 7, 1925. Another battalion is to be organized at the field artillery school. A battery will probably be located at Ryuzan, near Keijo, Korea. Two antiaircraft regiments are to be completed by April 1, 1930. Each regiment may have 50 officers, 15 warrant officers, and 1,022 enlisted men.

2. The amount of money spent on both services since the war and the tendency toward the future:

(1)

| Year | Army aviation | Antiaircraft artillery |
|-----------|---------------|------------------------|
| 1919..... | \$5,000,000 | ..... |
| 1920..... | 8,000,000 | ..... |
| 1921..... | 10,000,000 | ..... |
| 1922..... | 10,000,000 | ..... |
| 1923..... | 12,500,000 | \$20,000 |
| 1924..... | 12,500,000 | 20,000 |
| 1925..... | 15,000,000 | 127,000 |

Amount to be spent between Apr. 1, 1926, and Mar. 31, 1928, \$2,487,000.

- (2) It is probable that larger amounts will be made available for both aircraft and antiaircraft units in the future.

3. The number and types and age of planes; same for antiaircraft guns, searchlights, and listening devices:

a. Aviation—

- (1) Serviceable service planes:

| | |
|--|-----|
| 15-meter Nieuports (120-horsepower Le Rhone) | |
| 1-4 years..... | 70 |
| 29 C-1 Nieuports (300-horsepower Hispano-Suiza) new..... | 80 |
| Salmson (230-horsepower Salmson) 1-4 years.. | 250 |
| Total..... | 400 |

An additional 300 service planes are planned for April 1, 1930.

- (2) Serviceable training planes:

| | |
|--|-----|
| 23-meter Nieuports (80-horsepower Le Rhone) | |
| 1-4 years..... | 50 |
| 16-meter Nieuports (80-horsepower Le Rhone) | |
| 1-4 years..... | 25 |
| 15-meter Nieuports (120-horsepower Le Rhone) | |
| 1-4 years..... | 75 |
| Hanriot 15, a (80-horsepower Le Rhone) new.. | 50 |
| Total..... | 200 |

- (3) Civilian planes, about 100.

NOTE.—The five or six Farman *Goliath* bombing planes on hand are not believed to be serviceable. The 230 horsepower Salmson engines, with which these planes have been equipped, are not giving satisfaction. Two 300-horsepower Salmson engines and two 400-horsepower Lorraine-Dietrich engines are said to have been tried out in these planes. The type of plane with which the new bombing regiment is to be equipped is not settled. It is said that a Farman *Goliath*, a Dornier plane, and a Mitsubishi IV 1924 model are being considered.

- (4) Japan can now turn out 30 complete planes per month.
Estimated rate in war at end of 6 months, 55; end of one year, 80.

b. Antiaircraft—

While there has been an antiaircraft training and experimental unit at the field artillery school for a year or more, the first service antiaircraft unit was officially established on May 1, 1925. Facts regarding the number and types of antiaircraft guns, searchlights, and listening devices are not at hand, and inquiry at the War Office is certain to result in no information of value, since the War Office could probably decidedly reply in this case that the subject is still under investigation. The guns used for training are of the 7.5 caliber and have an all-round traverse and a maximum elevation of 85° and are said to have a maximum range of 10,000 meters.

4. The principles upon which the lives of planes are determined and the average life of each type of plane:

The principles upon which the lives of planes are determined in Japan and the average life of each type of plane are unknown. The ages of planes given in the preceding paragraph are the result of observations made at the army aviation schools and service units during the past nine months. Army planes usually have the date of manufacture on the tail. Army service planes are said to be overhauled after 100 hours of flying. The amount of flying done by the army is small. The 12 planes in the First Company (squadron) of the First Regiment—pursuit at Kagamigahara—flew 543 hours during 1924. The other company in the First Regiment is estimated to have flown an equal number of hours. The total number of hours flown by the Japanese Army in 1924, both by schools and aviation units, was 17,556. Consequently, the average life of a plane may, barring accidents, be long in years.

5. Method of storage of reserve planes and the cost of reconditioning made necessary for use:

Reserve planes are stored in the air supply depot—one at Tokorozawa and one at Kagamigahara. Methods of storing are unknown.

6. The number of planes on hand at the end of the war, what has been done with them since, and the number of planes purchased since the war.

The number of planes on hand at the end of the war is estimated to have been 50, procured for the most part for experimental purposes. These planes have been sold or given to civilians, or have been salvaged by the army. The number of planes purchased since the war is estimated to have been 1,200, or double the total number of serviceable service and training planes now estimated to be in possession of the army.

7. A comparison of the existing planes with those in our hands; the same data for engines:

a.

| Planes | | | Rate of climb per minute | Absolute ceiling | Speed in miles per hour | Endurance |
|--------------------------------------|------------------|------------------------|--------------------------|-----------------------|-------------------------|-----------|
| Plane | Type | Engine horsepower | | | | |
| Salmson 2-A-2..... | Observation..... | Salmson 230..... | <i>Feet</i> 841 | <i>Feet</i> 21,300 | 113 at 3,000 meters. | 3 hours. |
| Nieuport 15-meter ¹ | Pursuit..... | Le Rhone 120..... | 1,035 | 21,300 | 131 at 3,000 meters. | 1½ hours. |
| Nieuport 29-C-1..... | do..... | Hispano-Suiza 300..... | 1,460 | 27,885 | 134 at 4,000 meters. | 2 hours. |
| Farman "Goliath"..... | Bombing..... | 2 Salmson 230..... | 820 | 15,750 | 100 at ground..... | 8 hours. |

¹ The 15-meter Nieuport is being superseded as a pursuit plane by the Nieuport 29-C-1. The service units have not been supplied with the 29-C-1 as yet.

A table giving further data regarding the foregoing as well as other types of army planes is attached hereto.

b. Engines.

The engines are of standard European design. So far as is known, engines of Japanese manufacture develop the same horsepower as imported engines of similar type.

8. The question of handling personnel; the class from which pilots are secured; method of training pilots and observers.

Men are conscripted for the air service as for the other arms and services. The period of service is 22 months and 20 days. Officers are now commissioned in the air service. Pilots are approximately 50 per cent commissioned and 50 per cent noncommissioned officers. It is the policy to make every noncommissioned officer in pursuit squadrons a pilot. This policy is dictated largely by financial considerations. Company officers and noncommissioned officers of all arms, except military police, are detailed to pursue the course in pilotage at the Tokorozawa Aviation School. This course lasts nine months. Company officers of all arms, except military police, are

detailed to pursue the course in reconnaissance at the Shimoshizu Aviation School. This course lasts five months.

| | |
|--|-----|
| Present rate of training pilots, per month..... | 10 |
| Estimated in war at end of 6 months, per month..... | 50 |
| Estimated in war after one year, per month..... | 100 |
| Average number enlisted men in training as pilots each year..... | 60 |

Army air force strength estimated.

| | Present | Apr. 1, 1930 |
|-------------------------------|---------|-----------------|
| Officers..... | 500 | 875 |
| Warrant officers..... | 90 | 130 |
| Noncommissioned officers..... | 500 | 950 |
| Privates..... | 2,600 | 4,200 |
| Total..... | 3,690 | 6,155 |

9. More detailed information may be obtained in M I-26, especially with respect to antiaircraft defense plans.

JAPAN
ARMY AIRCRAFT
(Metric units used)

| Name | Original name | Engine | Span M. | Length M. | Night N. | Sup- porting surface Sq. N. | Rate of climb | Absol- ute ceiling | Speed in kilo. | Endur- ance | Carry- ing ca- pacity | Total weight | Equipment |
|----------------------------------|----------------------------|--------------------------------|------------|--------------|-------------|--------------------------------------|-------------------------|--------------------------|---|-----------------|-----------------------------|-----------------|-----------------------|
| A-1 training----- | Nieuport----- | 1-80 h. p. Le Rhone | 9.04 | 7.14 | 2.76 | 23.00 | 3,000 m. in 38 min. | Meters 4,000 | (Low flight) 130 km. hr. 140''----- | H. min. 2 30 | Kg. 270 | Kg. 260 | |
| A-2 training----- | do----- | do----- | 8.11 | 7.07 | 2.75 | 18.00 | 3,000 m. in 35 min. | 5,000 | | 2 00 | 270 | 710 | |
| A-3 training----- | do----- | do----- | 8.21 | 5.80 | 2.82 | 15.00 | 3,000 m. in 15' 40'' | 5,250 | 139'' at 3,000 m.-- | 2 00 | 175 | 530 | M. G. 1. |
| A-3 training and pursuit----- | do----- | 1-120 h. p.----- | 8.21 | 5.80 | 2.82 | 15.00 | 3,000 m. in 9 min. | 6,500 | 210'' at 3,000 m.-- | 1 30 | 230 | 530 | M. G. 1 or 2. |
| A-4 pursuit----- | Nieuport-29-C-1 | 1-300 h. p. Hispano- Suiza. | 9.70 | 6.50 | 2.58 | 26.84 | 3,000 m. in 6'46'' | 8,500 | 214'' at 4,000 m.-- | 2 00 | 170 | 1,150 | M. G. 1. Camera 1. |
| B-1 observation--- | Salmonson-2-A-2 | 1-230 h. p. Salmonson | 11.75 | 8.50 | 2.90 | 27.30 137.27 | 3,000 m. in 11' 42'' | 6,500 | 181'' at 3,000 m.-- | 3 00 | 510 | 1,272 | M. G. 1. Camera 1. |
| B-2 bomber----- | Farman, "Goli- ath"-60. | do----- | 28 | 14.5 | ----- | 45.00 1165.00 | 2,000 m. in 8 min | 4,800 | 160'' l. f.----- | 8 00 | 2,000 | ----- | |

DATA NOT AVAILABLE.

| | | | | | | | | | | | | | |
|-------------------|-----------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| F-1 training----- | Hanriot-15----- | 1-80 h. p. Le Rhone | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
|-------------------|-----------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|

¹ It is not certain which figure (if either) is correct. In any case the plane is of standard French design.

JAPAN

SQUADRON IN CHINA TO BE STRENGTHENED

According to the Japanese press, the first foreign service squadron (Chinese squadron), at present under the command of Rear Admiral Nagano, will be reinforced by one or two light cruisers, one division of first-class destroyers, and one division of second-class destroyers from December 1, 1925, at which time the annual reorganization of the Japanese fleet takes place.

The fifth destroyer division attached to the second destroyer squadron has been doing duty in Chinese waters since the middle of July, and the fourteenth destroyer division at present in reserve at Kure naval station has been ordered to proceed to Shanghai. The fourteenth destroyer division is at present in dry dock undergoing necessary repairs and will leave Kure August 31 for Shanghai.

Each destroyer will carry a landing force of 20 men.

NETHERLANDS

NOTES ON CRUISER "SUMATRA"

July, 1925

The Dutch light cruiser *Sumatra*, which is building at the plant of the Netherland Shipbuilding Co., Amsterdam, Holland, is almost ready for commissioning, being about 75 per cent completed.

The *Sumatra*, sister ship to the *Java*, is to displace 7,500 tons when completed, has a designed speed of 30 knots, and the following dimensions: 501 feet 7 inches by 52 feet 2 inches by 36 feet 5 inches. Her builders express the hope that she will make 32 knots. She has 70,000 horsepower.

She has two stacks in a fore-and-aft line between two military masts. Four searchlights are mounted on each mast.

Armament.—The *Sumatra* mounts ten 15-centimeter guns, two on the forecastle in a fore-and-aft line one above the other, two aft on the quarter-deck similarly arranged, and three on each broadside, giving a total broadside of seven guns. Two antiaircraft guns are mounted on the superstructure abreast the foremast, one on each side. The guns are supplied with ammunition by electrically-operated, two-stage hoists protected by flame-proof trapdoors. The ammunition service requires excessive handling and, while safe, appears to require excessive man power and may prove slow. A small locker is provided at each gun for ready ammunition, possibly five rounds per gun.

Two range finders are already mounted forward of the foremast, one about 3-meter base and the other about 5-meter base.

The ship is to be fitted with a method of director fire leading through a central station and plotting room below decks. Two paravanes are carried. Cranes are provided, one on each side amidships, for hoisting airplanes aboard, and two are to be carried, but as yet there is no provision for launching them either by catapult or runway for taking off.

Armor.—The *Sumatra's* side armor, about 12 centimeters in thickness, and protective deck 5 centimeters in thickness, are arranged similarly to our battleship armor with the protective deck sloping down to meet the armor.

Gas masks are to be carried for all men.

She has no torpedoes and carries no mines.

The conning tower is about 12-centimeter armor with the customary slits for sight. One of the range finders can be operated from the conning tower.

Radio.—The radio installation is not yet aboard and no information regarding it is available. The main radio room is a sound-proof room below the mainmast and above the protective deck.

Propelling machinery.—The *Sumatra* has eight Schulz-Thornycroft boilers in four boiler rooms. These boilers are double-ended, oil-burning, in two sizes, four of each. One size has eight burners on each end and the other size 11 on each end. There are four boilers to each stack and the closed fireroom system is used with electric blowers taking air from a common suction around each stack.

The *Sumatra* is to be self-sustaining in water by means of an adequate evaporating plant.

She has three propellers, driven by geared turbines having three units—h. p., i. p., and l. p. The two outboard shafts have backing turbines in their l. p. units, but the center shaft has none. The center engine room is aft of the two outboard ones, which are abreast each other.

The maximum fuel oil supply is 1,070 tons and is sufficient to give a cruising radius of 4,800 miles at 12 knots and 3,600 miles at 15 knots. The oil tanks are forward in the double bottoms and extend along outboard of the firerooms and seemingly in the fireroom double bottoms also.

Auxiliaries.—There are three 200-kw. 120-volt turbo generators in separate dynamo rooms, the after room having two and the forward room one. Above the protective deck amidships is a 150-kw. 120-volt emergency generator driven by a kerosene or gasoline motor. This generator is for use if the others are submerged or lose their steam supply.

There is a very well-fitted-out machine shop on the port side amidships.

Three refrigerating machines of the carbon dioxide type are installed, two of which can be used for cooling magazines and cold storage and one for making ice and for cold storage.

An Anshutz gyro compass and repeaters are used.

Two large gasoline storage tanks are located aft, one on each side, above the protective deck and fitted with a carbon dioxide replacement system. Also the filling and discharge pipes are double pipes with carbon dioxide in the space between the inner and outer pipes.

General.—The *Sumatra* is to be used in the East Indies with a crew of 50 per cent natives and 50 per cent Dutch, and the living quarters are divided accordingly with different washrooms, etc. The crew will swing in hammocks, and two large lockers are provided for each man. There is more than adequate living space and ventilation is provided by the exhaust and plenum system.

The crew's space is forward with the deck force quarters above the firemen. Petty officers' rooms are a little abaft the beam on both sides. Officers' quarters are aft, while the captain's cabin is in the after deckhouse.

Storage space appears to be exceedingly limited, as most of the ship is taken up by machinery spaces and living quarters.

PERU

COMBAT ESTIMATE

August, 1925

I. MILITARY

1. STRENGTH

| | Present strength | Trained reserves | Military man power |
|-------------------------------------|------------------|------------------|--------------------|
| Regular army..... | 7,500 | | 7,500 |
| First line reserves..... | | 20,000 | 20,000 |
| Untrained reserves (estimated)..... | | | 79,000 |

The army of Peru is divided into three categories, namely, the permanent army, the reserve army, and the territorial army. The permanent army is composed of the active army and the mobilization army. The active army is in effect in time of peace. The mobilization army consists of conscripts of from 21 to 25 years of age, who have not been called to the colors but who can be so called by virtue of the law to complete the active army. The reserve army consists of five classes of individuals of between 25 to 30 years and those conscripts between 21 and 25 years of age who have been excused from

service in the permanent army. The territorial army consists of the 20 classes of from 31 to 51 years of age who are excused from service in the permanent and reserve armies.

2. ORGANIZATION

(a) *Peace*.—The army is under the supreme direction of the Minister of War, who is assisted by a military cabinet and the general staff. For the purposes of administration, the country is divided into five regions, four divisional regions, and the region of the Montana. The term divisional region is used in a similar sense as the term corps area is used in the United States, and each divisional region contains the skeleton organization on which it is contemplated in emergency to build a war strength division. The region of the Montana is not a divisional region in that sense of the word. Following the territorial division, therefore, the active army is organized into four skeleton divisions. These four skeleton divisions consist of two regiments of infantry, one regiment of artillery, and one regiment of cavalry each. (The fourth division also has one additional company of light infantry.) The regiments within these divisions are also skeletonized. In addition to the troops of the four divisions, there is the infantry regiment at Iquitos, the cavalry regiment, "Escort of the President," at Lima, the coast artillery regiment at Callao, and one group of campaign artillery.

Taking the different arms separately, the infantry consists of 9 regiments regular infantry, 1 company light infantry, and 1 battalion at the military school. The cavalry consists of 5 regiments. The artillery consists of 4 regiments and 1 group of campaign artillery. The coast artillery consists of 1 regiment. One machine-gun section is assigned to each regiment.

(b) *War*.—War organization of Peruvian troops would naturally be subject to changes by the general staff. Each division would be brought to war strength by mobilization of the reserves in its territory. The war strength of a Peruvian infantry regiment numbers approximately 2,100 officers and men. The organization of a war-strength division is unknown.

3. EQUIPMENT

The artillery equipment, both mountain and field, is of French make, Schneider-Canet rapid fire, caliber 75 mm. There also exists a quantity of Krupp mountain and field guns. The total number of guns in Peru is 112. The coast artillery is equipped with Armstrong guns, caliber 152 mm. and Schneider-Canet, caliber 24 cms., rapid-fire. There are approximately 60,000 Mauser rifles and carbines, model 1891, caliber 7.65 mm., 15,000 Mannlicher, model un-

known. Most of these rifles are in poor condition. A few new barrels have been purchased within the last year for experimental purposes. There are approximately 105 Schneider-Canet machine guns. There is no special type of equipment in Peru. All equipment is practically French type, or such as was introduced by the French mission under the influence and experience of the World War. Clothing is made locally, but the only equipage industry is minor repair work. There is a shortage of ammunition and transportation. The army owns no motor transportation.

The equipment of the military service of aviation consists of 26 planes. The majority of these planes are now in serviceable condition. A very decent flying field has recently been completed, with barracks, quarters, hangars, and workshops. Twelve new pilots have recently been graduated from the aviation school. The service of aviation, which receives the personal attention of the son of the President, is the best equipped and most efficient arm of the Peruvian Army.

4. MOBILIZATION

The division of the Republic into regions also facilitates mobilization and concentration in time of war. Each region is under direct authority of a commandante general, who has under his command forces of cavalry, infantry, and artillery, which serve as a basis for the formation of a division perfectly equipped at any moment. Difficulty would be experienced in mobilizing any appreciable strength on a given front, due to lack of roads or means of transportation. Military service is compulsory for all citizens of the Republic between 21 and 50 years of age who are of sound constitution and otherwise mentally and physically fit. There are no exemptions to the law. In time of peace those liable for service may be called upon for a maximum period of two years in the army or the navy; in time of war this service is indefinite, the termination thereof being vested in the executive power.

There is a special service under the military cabinet, called the service of mobilization, which makes a constant study of needs and methods of mobilization, and the regional services are specially organized to carry out the laws providing for compulsory military service.

The work of bringing the army up to war strength, therefore, ought to be accomplished rapidly, in case of necessity.

5. THEORY OF COMBAT

Like most Latin-Americans, the Peruvians could not be relied upon to fight a decisive battle in which heavy losses would be involved.

Guerrilla warfare would be a certainty. Close liaison between units is not to be expected. The infantry would be depended upon for the success of any battle. The development of the army has not been with a view of carrying on a successful war against an external enemy but rather the perfection of a force for keeping down internal disorders. An invading force probably would not meet with any organized resistance except at large stations of troops like Lima, Arequipa, Cuzco, and Lambayeque. Peru might be relied upon to take the initiative in case of war with Ecuador or even Bolivia but certainly not against any stronger neighbors.

6. DISTRIBUTION

(a) *Normal distribution*.—The country is divided into five military districts with a division (see organization) assigned to four of these districts, and one regiment to the fifth district. Territorial headquarters are located at Lambayeque, Lima, Arequipa, Cuzco, and Iquitos. The Iquitos troops are used to garrison small posts.

(b) *Present distribution*.—The present distribution is the same as above.

7. EFFICIENCY AND MORALE

The discipline and morale of the army are only fair. It should be remembered that the private soldier, almost without exception, is a Cholo or native Indian or half-breed, undersized, underfed, and uneducated. Entering athletic teams for military organizations in sporting events, putting military races on the Sunday racing programs, and the holding of demonstrations, drills, etc., which the public are invited to attend, are helping the morale and giving greater incentive to the soldiers to attain proficiency. The poor pay and the irregularity with which it is received hinders the morale greatly.

The efficiency of the army, on the other hand, is low, due to poor and worn-out equipment, and lack of firing or combat practice with such equipment as they have.

Probably the worst drawback to efficiency in the army is political influence. Many of the senior officers are immersed in politics. The French mission did nothing to keep political influence out of the army.

Note.—In case of a national emergency the national police, of nearly 7,500 gendarmes, civil guard, and corps of security, which are organized into regiments, could be used to supplement the regular forces. Their equipment is the same as the army. At present, the distribution of these forces throughout the Republic relieves the army from much tedious duty, and allows more time for strictly military training.

II. NAVAL

8. STRENGTH

The Peruvian Navy consists of two cruisers, one gunboat, and one destroyer. In addition there is a river flotilla on the Amazon consisting of four launches, or river gunboats. Peru has contracted the purchase of two submarines, which are now being built in the United States. The School of Naval Aviation has two Curtiss sea gull planes, five HS-2 planes, and three Boeing sea planes.

9. ORGANIZATION AND ARMAMENT

The two cruisers are armed with two 6-inch, eight 3-inch, eight 1½-inch guns, and two 18-inch torpedo tubes. The gunboat *Lima* is armed with four 4-inch and four 47-mm. guns and two machine guns; the destroyer with six 65-mm. and two 18-inch torpedo tubes. The cruiser *Grau* has recently been converted into an oil burner, and can make 25 knots. The *Bolognesi* is also being so converted at the present time.

10. DISTRIBUTION

All ships are in home waters, except the *Bolognesi*, which is now in Panama for alterations. The base of the fleet is at Callao. A submarine station is under construction on the Island of San Lorenzo.

11. EFFICIENCY AND MORALE

The United States system of training has been adopted and the American mission is making satisfactory progress. The discipline in the lower half of the commissioned personnel is considered excellent. In the upper half loyalty to the chief is sometimes lost sight of on account of political intrigue for promotion and internal jealousies. There is less of this every year, however, because the mission has made it a policy to oppose every measure backed by political influence rather than the good of the service. Discipline of the enlisted men is excellent. They are humble, obedient, and loyal. Serious disciplinary offenses are infrequent. Morale is very good when the insignificant pay and uninteresting duty on board of vessels are considered. Under the guidance of Captain Davy (ex-commander, U. S. N.) and now a member of the American Naval Mission, an excellent esprit has been developed among the students of the naval academy, who present the best example of morale of any group of young men in Peru.

III. GEOGRAPHIC

12. GEOGRAPHIC INFORMATION AFFECTING THE STRATEGY OF THE COUNTRY.

The coast line of Peru is 1,300 miles long. The coast is generally straight and precipitous and is beaten, especially in winter, by heavy southwest swells. There are but few coves in which small vessels or boats can find shelter from the waves. The lines of cliffs are sometimes broken by sand beaches of great length, especially to the north, but the surf is equally as violent and landing would be difficult. As it seldom rains in the coast region, it is difficult to procure fresh water. In the Department of Piura is a desert which extends 200 miles from the Gulf of Guayaquil to the border of the Monope Valley. The country bordering Chile is equally barren. During the months of January, February, and March dense fog banks occur and extend from the coast some 150 miles offshore. To the east, bordering Brazil, is the great unexplored territory heavily covered with trees and tropical growth.

Between the Pacific and the West Cordillera the land gradually rises from a coast strip averaging 80 miles in width in which there is little vegetation and much sand and rock. Across this narrow strip a few small streams flow, some giving birth to considerable vegetable life along their banks. This coast strip, some 1,300 miles long and less than 100 miles wide, is substantially a desert, since rain never falls there. It would be impossible for an invading army to maintain itself on the country.

Approach from Bolivia is difficult except via Lake Titicaca. The lower branches of the Desaguadero are swampy and the region northeast of the lake mountainous and difficult. Practically all transportation on the lake is Peruvian. Unless it could be seized by an enemy, approaching from Bolivia attack would be difficult.

In case of hostilities with Brazil, the latter country could readily take possession of Iquitos and all Peruvian posts controlled from that point. Further advance would be practically impossible, however.

Capturing the Province of Moquegua and the ports of Ilo, Mollendo, and Islay would leave the route to Arequipa open. The capture of Arequipa would deprive Peru of its richest agricultural Province. The entire line to Puno and the transportation on Lake Titicaca would probably be lost. The reduction of Cuzco, Abancay, and Ayacucho would ultimately follow. Granting the capture of Lima, but interruption of the Central Railway, an enemy could reach Cerro de Pasco via Huacho and Sayan. This could be done by either landing at Huacho or by utilizing the railroad from Lima to Ancon and the narrow Northwestern Railway from Ancon to Huacho. Having reached Cerro, the coal mine at Goyllarisquisca

would readily fall. Approach to Oroya would then largely depend on the rolling stock, but would be feasible under any circumstances. Most of the engines are oil burners, and with Lima in control of the enemy the oil supply would soon be exhausted. There are enough coal-burning locomotives on the Cerro de Pasco Railway, however, to transport any invading force to Oroya, or down the Central Railway to Lima, if desired.

All Peruvian ports from Paita to Huacho are considered vulnerable and with them access to the hinterlands is always possible.

13. PRESENT SITUATION

Peru is in no condition to wage war against any country, with the exception of Ecuador, and possibly Bolivia.

The president has promised that the revenue from the national defense act shall go to the enlargement and improvement of the navy, the present policy of the nation being simply to afford herself protection rather than to ever adopt an offensive.

The entire national enterprise and endeavor is focused for the present on the conduct of the Tacna-Arica plebiscite. The army and navy must both lend all their organization and resources in order that the natives of those Provinces may be transported to Arica and fed and cared for until they can vote.

Just at the moment Peru has no other national policy, except to do everything possible to win the plebiscite.

14. FUTURE SITUATION

Conditions in the navy will continue to improve under the guidance of the United States mission, especially with the acquisition of any new ships.

Mr. Leguia has four more years to serve, unless a revolution successfully removes him. This is only likely in case the result of the plebiscite is unfavorable to Peru, and he has plenty of time to prepare himself for that emergency. In case of a vote favorable to Peru, the present policy of the country will remain unchanged for another four years. In case the vote is unfavorable, the national policy, no matter who is President, will be to prepare for an eventual war with Chile.

Peru's weakness is her financial situation, which is continually becoming more difficult and is tying up more and more of her resources. Taxation has already reached a point where to raise the amount of the tax on certain commodities results in a decrease of revenues therefrom, the prices being prohibitive.

The army, for the first time in years, is on its own, there being no foreign mission under contract at present. If the vote in the plebiscite is favorable to Peru, an American mission will almost surely be requested.

PERU

MISCELLANEOUS NOTES

September, 1925

The following data is of interest regarding the percentage of completion of the two submarines building at New London, Conn., as of date July 31:

Hulls: *R-1*, 70 per cent, *R-2*, 60 per cent, an increase of more than 10 per cent during the month, which shows excellent progress. *R-2* will be launched ahead of *R-1*, all work being to that end.

Main engines: Advanced from 85 to 90 per cent, so that during September they will be ready for preliminary tests.

Auxiliary machinery: The four air compressors ready and tested. Various pumps and other units in different stages of completion.

Torpedo tubes: Completed and tested to 90-pound pressure.

Torpedoes: Parts in various stages of completion. Data reports percentages incomplete.

On August 4 the superintendent of the Crandall Engineering Co., of Boston, arrived to take charge of the building of the naval base on San Lorenzo Island, the Electric Boat Co. having sublet that part of their contract to the firm mentioned. Twelve other employees (engineers, foremen, etc.) of the same company arrived two weeks later. Large consignments of equipment, lumber, steel, and other construction material of various sorts began to arrive (mostly from the United States) about the 15th, and shipments have been coming in steadily ever since. Through arrangements made with the Treasury Department, this material has been sent directly to San Lorenzo instead of passing through the port of Callao, thus saving considerable "red tape" in the customs. There are signs of real activity at the new base now, and soon the construction work will be in full swing.

The inauguration of the new buildings at the hydroaviation station, Ancon, was scheduled at first to take place on August 8, but due to unforeseen circumstances the ceremonies were postponed, by presidential order, to the 15th, 22d, and 29th, successively, being finally held on the latter date. The affair was most successful from every point of view. A special train from Lima conducted the President, his cabinet, about 50 senators and deputies, and numerous other important functionaries, arriving at Ancon at 11.30 a. m.,

where they were met by Commander Grow and the Mayor of Ancon. Proceeding to the hydroaviation station, the President reviewed the personnel and made an inspection of the buildings, being accompanied by a large following. During this inspection three planes were manœuvering in the air. Then followed the official ceremonies, which consisted of speeches by the Minister of Marine, Commander Grow, and President Leguia, and the hoisting of the national ensign on the new flagpole by the President. Press accounts of the ceremonies are appended. Grow's speech was excellent and roundly applauded. Everyone present was thoroughly impressed with the fine work which has been done in hydroaviation, and particularly with the fine station Grow has built up with very little financial aid. On August 31 the Chamber of Deputies gave a vote of applause to the Minister of Marine for the work which has been accomplished in hydroaviation.

A supreme decree recently signed by President Leguia gives to Peruvian naval officers their first "longevity in grade" pay—an extra allowance of 5 per cent on base pay for the first year, 10 per cent for second to fifth years, and 20 per cent thereafter for those who possess all legal requirements for promotion but for whom no vacancies exist. This will offset to a large degree the natural dissatisfaction which has been felt among the officers on account of the slow promotions necessarily encountered in a small navy with limited personnel in the higher grades. The necessary funds for payment of this "longevity" allowance was included in the navy estimate for 1925 and in the approved budget which went into effect on June 1.

August 6 was declared a national holiday in honor of the one hundredth anniversary of the Bolivian independence day, and numerous functions (official and otherwise) were held in celebration of the occasion. Reading between the lines, it appears that the Peruvian government is "playing up" quite strongly to Bolivia at the present time—and perhaps for very good reasons. The major part of all imports and exports, passing to or from Bolivia, are now shipped over the Peruvian Railway, Mollendo being a port of growing importance in consequence. Owing to the active and increasing competition on the part of Chile for this traffic over the railroad from Arica, however, and the new competition on the part of Argentina through its recently completed railway connections to La Paz, thus giving access to the Atlantic seaboard, it behooves Peru to make

every effort to retain the predominant position now held in commercial relations with Bolivia. Perhaps, also, Peru may be making her friendly overtures with a view to laying a solid basis for future "conversations" regarding a Bolivian port on the Pacific in case she wins the Tacna-Arica plebiscite, which subject will undoubtedly come up for discussion as soon as the fate of the disputed territory is settled.

With reference to the Tacna-Arica problem, although only three meetings of the plebiscite commission have been held (in Arica) during the month, and very limited action taken so far, not only the President, but many of his ministers of state and important representatives of Congress, seem to be quite satisfied and pleased with the way things are shaping themselves in Arica, and particularly of the manner in which General Pershing is handling the matter. They all feel that the outlook for Peru is very bright, and this feeling is reflected in the local press and public generally. It is learned from very reliable authority that confidential reports received by the Government from the Peruvian commissioner state that General Pershing has thoroughly convinced Señor Edwards, the Chilean commissioner, that it would be to Chile's advantage, in the eyes of the world, to assist in the proper guarantee of a free and fair vote to the Peruvians during the plebiscite, but that Barcello Lira, the very powerful Intendente (Prefecto) of Tacna-Arica, is not only most hostile to such procedure, but even insistent that every obstacle shall be put in their way, and that these diametrically opposed attitudes have produced a breach between the two which has widened to such extent that Edwards is forced to go to Santiago to confer with President Alexandri concerning the matter with the hope of having Lira "ousted." The public announcement that Edwards's trip to Santiago is to meet the Prince of Wales during the latter's visit is, of course, nothing more than a "camouflage," according to the same report.

RUMANIA

MISCELLANEOUS NOTES

September, 1925

A Rumanian gunboat at Rhodes

The Rumanian gunboat *Dimitrescu* with the cadets of the naval academy arrived at Rhodes on August 7. The cadets were given a hearty reception by the Italian authorities.

Shipment of 50 Fokker scout machines, D-11 type, 400-horsepower motors, to War Department of Rumanian Government

It is reliably reported that the Fokker Co. has shipped 50 Fokker scout machines of the D-11 type, with 400-horsepower motors, to the War Department of the Government of Rumania.

RUSSIA

VISIT OF MEN-OF-WAR TO BERGEN

August, 1925

The Russian Soviet men-of-war *Aurora* and *Komcondany* visited Bergen, Norway, in August.

The *Aurora* is an armored cruiser, about the same size as the U. S. S. *Rochester* and having a silhouette almost identical with that of the *Rochester's*, except for forecastle and quarter-deck turrets; the *Aurora* having two single-gun turrets where the *Rochester* has a two-gun turret, the turrets of the *Aurora* appearing much smaller.

The *Aurora* carries ten guns, approximately 4.7-inch, in single-gun turrets, two on the forecastle and two on the quarter-deck on the center line, and three waist turrets on each side, giving a broad-side of seven guns. Two "AA" guns, approximately 2-pounders, are mounted aft. There are two range finders, one above the bridge and one aft, approximately 1½ meters, and two searchlights, one forward and one aft.

The *Komcondany* is apparently a transport, about 12,000 tons, and no guns were seen on her.

The ships appear to be very much overmanned. Large crowds of men can be seen at almost any hour of the day crowding the rail, as seen in the accompanying pictures. Rowing appears to be the main activity and many crews can be seen about the harbor.

As far as could be seen, the men appeared to be fairly well disciplined, though the usual courtesies to their officers were not noticed. Matters of discipline were settled by a civilian committee. Liberty parties seemed to be well behaved and orderly.

The men were very well received by the population of Bergen, where Bolshevik tendencies are very strong, and the Russians overstayed their period in Bergen three or four days. It is believed that the main object of their visit was to spread Bolshevik propaganda and the unusually large amount of money spent by the men was to this end. The men rode in taxicabs, frequented the best hotels, and made large purchases in the city. A considerable part of the currency they used was American paper. The Russians set



U. S. S. R. TRANSPORT KOMCONDANY



U. S. S. R. ARMORED CRUISER AURORA

up headquarters at the Folkset Hus, in the poorer part of the city, and open house was maintained. Speeches were in progress there most of the time and several large dances were given to the public, at which the Soviet flag was raised over the *Norwegian* without objection from the Norwegians present. Open house was also maintained on board their ships and anyone in need of a meal or a place to sleep was welcome. It was said that several of the leading Bolsheviks of the city had made their home on the Russian ships during their stay. Three tons of chocolate were bought by the men and given to the children on the street.

RUSSIA

MILITARY ACTIVITIES

September, 1925

The following article appeared in the Italian press:

English newspapers are much interested in Russia, and according to them one of the mysteries of the postwar period in Europe is Russia's remarkable progress in armaments. The red army consists of 1,000,000 men; it has arms and ammunition. Russia is now developing aviation. One thousand and thirty new planes were ordered by the Government for 1925, 500 to be built in Russia, the rest in Holland and Italy, this with a view to creating an air force which will be the first in Europe. It was not known up to this that Trotsky and his men encouraged aviation. An important aircraft plant was built by a German near Moscow, and this, together with other local plants, get out 20 planes per day. It is not known where Russia gets the money for these armaments. Russia, though bankrupt, is building up an army which will be of the utmost importance in future international policy. Russia does not belong to the League of Nations and is free to act as she pleases. While the rest of Europe is thinking of peace the Soviets are actively preparing for war and are trying to expand toward the Mediterranean.

SWEDEN

NOTE ON GÖTEBORG FORTIFICATIONS

August, 1925

There are three forts near Göteborg, Sweden, one of which is old and unoccupied. The fort nearest Göteborg is called New Eefsborg, located in Karingberget, a mountain about 3 miles from the center of Göteborg on the left-hand side of Gota Alv (River) facing seaward. Directly across Gota Alv from New Eefsborg is Old Eefsborg, the unoccupied fort. Between 2 and 3 miles to the west of

New Eefsborg Fort is a small fortified island, probably Dynan Island. These forts are all very well masked and can not be recognized from the seaward.

The island on which the fort is located is flat and about 10 feet above sea level. Its area is about one-eighth of a square mile. The mountain upon which New Eesbord Fort is located is 157 feet high and has a very steep incline to seaward.

It was not possible to obtain any data upon the size and number of guns in the different forts, but it is known that New Eefsborg Fort is the strongest. Both are new and up to date.

SPAIN

PRESENT NAVAL ESTABLISHMENT

September, 1925

The following data is from official sources:

Ships

| Class of ships | In service | Building | Projected |
|-------------------------|------------|----------|-------------|
| Battleships..... | 2 | | |
| Protected cruisers..... | 4 | | |
| Light cruisers..... | 3 | 2 | |
| Destroyers..... | 6 | 3 | |
| Torpedo boats..... | 22 | | |
| Submarines..... | 9 | Various. | 28 (total). |

There also exist two old protected cruisers which on account of being obsolete are not included in the above.

“La Ley Miranda 1915” (The Miranda Law of 1915) called for 28 submarines; a number of these remain to be built. Some recent newspaper reports have stated that the construction of submarines would be commenced under the direction of technicians from the Krupps at the “Union Naval de Lavante” at Valencia.

A report received from Valencia in August, 1925, follows:

“It is very likely that the Valencia shipyards will be granted contracts for at least 6 of the 12 submarines which will have to be built to complete the 1915 program (Lay Miranda). In the event that the desired contracts are awarded, work on the construction of these boats will not be commenced for some time to come, inasmuch as the Valencia yards will depend upon the ‘Compania Siderurgica del Mediterraneo’ at Sagunto for their iron and steel and this company is at present erecting its plate mill, which in the opinion of the engineer in charge will not be ready for operation until next May.”

Naval air service

Serviceable apparatus on hand:

Heavier than air

| | |
|--|----|
| For the flying school..... | 16 |
| Pursuit | 9 |
| Naval..... | 2 |
| Observation | 20 |
| Bombing | 18 |
| Torpedo planes..... | 2 |
| Total..... | 67 |
| Average number of planes per squadron..... | 6 |

Lighter than air

| | |
|------------------------|---|
| Dirigible..... | 6 |
| Free balloons..... | 4 |
| Captive balloons | 2 |

These figures show a decrease of 4 heavier and 2 lighter than air since November, 1924.

No plans exist for a definite program of expansion. New construction depends upon projects approved from time to time.

There were 18 officers and 12 enlisted pilots, total 30. This is an increase of 10 officers and 1 enlisted over figures for November, 1924. The number of pilots turned out is not fixed. They are selected for training after competitive examinations, and the number varies greatly.

Budget for 1925-26, 2,000,000 pesetas (\$289,855, at 6.90 pesetas to \$1). Pay of the instructors and maintenance of auxiliary vessels of the air service are charged against this.

Naval personnel strength

A royal decree dated June 9, 1925, fixes the enlisted strength of the Spanish Navy for the fiscal year (June 30, 1925, to June 30, 1926) as follows. (Figures include noncommissioned officers and warrant officers.)

Authorized strength:

Navy: 14,000 men (same as for last year).

Marines: 3,447 (increase of 684 over last year).

The commissioned strength is practically unchanged.

*Distribution of the Spanish fleet for the year (fiscal) 1926**Training squadron.*

Battleships: *Alfonso XIII* and *Jaime I*.

Light cruisers: *Mendez Nunez* and *Blas de Lezo*.

Destroyers: *Alcedo* and *Velasco*.

Naval forces of North Africa.

Light cruiser: *Reina Victoria Eugenia*.

Old cruisers: *Princesa de Asturias* and *Extramadura*.

Seven gunboats, 3 torpedo boats, 11 cutters.

Ships for commission in Africa, Canary Islands, Balearic Islands, and jurisdictional waters.

Three destroyers, 19 torpedo boats, 9 submarines, 6 gunboats.

Ships for special service.

Old cruisers: *Carlos V*, *Catalina*, *Rio de la Plata*, and *Reina Regente*.

Airplane carrier, *Dedalo*; destroyer, *Villamil*; 2 war transports.

TURKEY

FORTIFICATIONS—GULF OF ISMID

August, 1925

The following information comes from a source believed to be reliable:

Marshal Fevzi Pasha, chief of staff, has recently completed a thorough and minute inspection of the fortifications in the vicinity of Ismid. During the past six months a large detachment of engineer soldiers have been building concrete fortifications at Darije and at Dil Iskelesse. A battery of 75's has been placed to east of the cement factory at Darije and another battery of the same caliber behind the railroad station at Dil Iskelesse.

The plan of defense provides also for the placing of fixed submarine mines between the points of Dil Burnu and Dil Iskelesse, where the Gulf of Ismid is narrowest. Fortifications will also be placed on the opposite side of the gulf near Dil Burnu.

Well-founded rumors are current that four batteries of large seacoast guns have been ordered in Holland and will be placed on the two sides of the gulf in the fortifications which are now being constructed.

Repairs are being made to the large workshop at Ismid, with a view to its use as a naval school.

The fact is well established that the works of fortification of the naval base are directed by ex-German officers.

UNITED STATES

AVIATION

October 1, 1925

Compiled by ONI

1. POLICY.

The policy relating to Army and Navy aircraft as approved by the Secretaries of War and Navy is the following:

1. Aircraft to be used in the operations of war will be designated—

- (a) Army aircraft.
- (b) Navy aircraft.
- (c) Marine aircraft.

Army aircraft are those provided by the War Department and manned by Army personnel.

Navy aircraft are those provided by the Navy Department and manned by Navy personnel.

Marine aircraft are those provided by the Navy Department and manned by Marine Corps personnel.

The marine air service is a branch of naval aviation.

2. The functions of the Army, Navy, and marine aircraft are as follows:

(a) *Army aircraft*.—Operations from bases on shore—

- (1) As an arm of the mobile army.
- (2) Against enemy aircraft in defense of all shore establishments.
- (3) Alone or in cooperation with other arms of the Army or with the Navy against enemy vessels engaged in attacks on the coast, such as—
 - (a) Bombardment of the coast.
 - (b) Operations preparatory to or of landing troops.
 - (c) Operations such as mine laying or attacks on shipping in the vicinity of defended ports.

(b) *Navy aircraft*.—Operations from mobile floating bases or from naval air stations on shore in cooperation with the fleet—

- (1) As an arm of the fleet.
- (2) For overseas scouting.
- (3) Against enemy establishments on shore when such operations are conducted in cooperation with other types of naval forces, or alone when their missions is primarily naval.

- (4) To protect coastal sea communications by—
 - (a) Reconnaissance and patrol of coastal sea areas.
 - (b) Convoy operations.
 - (c) Attacks on enemy submarines, aircraft, or surface vessels engaged in trade prevention, or in passage through the sea area.
- (5) In cooperation with the Army against enemy vessels engaged in attacks on the coast.
- (c) *Marine aircraft*.—The functions normally assigned to Army aircraft will be performed by the Marine aircraft when the operations are in connection with an advance base in which operations of the Army are not represented. When Army and Marine aircraft are cooperating on shore, the control of their operations will be governed by the one hundred and twentieth article of war.

2. ORGANIZATION

Aviation in the Navy is coordinated in the office of the Chief of Naval Operations through the Bureau of Aeronautics, other bureaus of the Navy Department, the fleet, and the naval shore establishment.

The Bureau of Aeronautics is charged with duties relating to the design, building, fitting out, and repair of naval and Marine Corps aircraft. It recommends to the Bureau of Navigation and commandant, United States Marine Corps, the detail, disposition, and aeronautic training of officers and enlisted men for aeronautic activities.

The existing administrative, industrial, and scientific organization of our Navy Department and all of its resources have been taken advantage of in the development of naval aviation, with little additional overhead beyond the general overhead charges of the department.

For our ordnance with aircraft we use experts in the Bureau of Ordnance.

For purchases, disbursing, and supply, we use the Supply Corps.

In the production of naval types of aircraft and their development for the work of the fleet, full use is made of the expert designers and engineers of the Navy.

Full use is made of the existing industrial facilities of the navy yards and naval stations to meet the Navy's aviation requirements.

In the fleet the "air squadrons" are organized into administrative and tactical commands similar to the destroyer squadrons or the submarine divisions. They are served by the fleet supply ships, maintained by their tenders, carriers, or the ships having catapults to which they are attached.

Among their duties are:

Observation and spotting for gunfire.

Scouting.

Patrol and defense of temporary fleet bases.

Gaining command of air in fleet battle.

Bombing and torpedo attacks on enemy forces.

Reconnaissance, bombing, and attacks on enemy forces in a landing operation.

Patrol and defense of the fleet when entering or leaving fleet anchorages.

General utility service, mail, messenger, torpedo recovery, aerial surveys, etc.

The close relationship of aviation to the Navy and the absolute interdependence of aircraft and ships in warfare at sea has been demonstrated time and again, not only in our own but in other navies.

The commander in chief of the fleet, after his experience of more than two years in that command, states in a recent report:

The commander in chief, as a result of his close personal observation, desires to inform the department that he considers any further agitation or argument in favor of a united air service or in favor of a separate aviation corps for the Navy as being entirely out of date. The commander in chief is unable to predict what will be the ultimate development of aviation material; but the developments now present in the fleet and in sight indicate clearly that the air squadrons exist as an arm of the fleet just as the destroyer squadrons and the submarine divisions exist; that they are part and parcel of the fleet, and of the Naval Establishment; and that the air squadrons can not exist on any other basis for cooperation, coordination, and indoctrination. In order to cooperate with the fleet the personnel must go through the same training, the same mill, and be made up of officers and men who are one and the same, mentally and spiritually, as the others in the fleet. They must not and can not properly exist on a basis of different broad training or different status in any respect, and any attempt to promote such existence is against the best interest of the fleet and the navy, and hence of the country as a whole.

After the experience cited above the commander in chief desires to inform the department that were he required to conduct a campaign he would want aeronautical units whose material had been developed and produced by naval authority, in accordance with specifications supplied by naval experience and dictated by naval requirements, to work with the fleet at sea, and to work around fleet bases; and he would want personnel which had been trained homogeneously in all the varied duties with the fleet at sea and around fleet bases. Both the personnel and the material must be under the sole control of the Navy Department, and of the commander in chief when with the fleet or in the fleet areas. Any other arrangement would be entirely unsatisfactory to any commander in chief.

The commander in chief informs the department in these matters in order that the department may have at hand a definite pronouncement in accordance with the latest experience by the officer who would be responsible for the conduct of operations against an enemy in time of war.

AERONAUTIC ORGANIZATION

The naval aeronautic organization for the fiscal year July 1, 1925, to June 30, 1926, is as follows:

AIRCRAFT SQUADRONS

- I. Fleet.
- II. Convoy and patrol.
- III. Marine Corps expeditionary forces.
- IV. Administration, development, and training.

I. AIRCRAFT SQUADRONS, FLEET

(a) Aircraft squadrons, Battle Fleet

| Authorized allowance per squadron | | Operating allowance |
|-----------------------------------|--|---------------------|
| 12..... | VO-1 Observation Squadron 1..... | 12-UO. |
| 12..... | VO-2 Observation Squadron 2..... | 12-UO. |
| 12..... | VF-1 Fighting Squadron 1..... | 12-TS. |
| 12..... | VF-2 Fighting Squadron 2..... | 12-FB-1. |
| 18..... | VJ-1 General Utility Squadron 1..... | 6 H-16; 6 HS. |
| 12..... | VT-2 Torpedo and Bombing Squadron 2..... | 12 SC. |
| 2..... | VO-4 Observation Squadron 4 (Omaha)..... | 2 UO. |
| | Aircraft units based on: | |
| | U. S. S. Langley (flagship and carrier). | |
| | U. S. S. Aroostook (tender). | |
| | U. S. S. Gannet (tender). | |

VO is carried on battleships. VF-1 and VF-2 will be carried on battleships when equipped with two catapults. VO-2 bases at San Diego until carrier is available, or on battleships, temporarily, as directed by commander in chief, Battle Fleet. VT-2 and VJ-1 base on the *Aroostook*. San Diego is the repair base for aircraft operating on the Pacific coast. In addition to duty as an experimental carrier, the *Langley* may be used at the discretion of the commander in chief, as a temporary base for any of the aircraft squadrons, Battle Fleet. Each squadron is allowed 50 per cent replacement airplanes.

NOTE: The heading of the column "Operating allowance" on this and succeeding pages does not restrict the number of planes that may be operated. The numbers in this column form the basis of personnel distribution. The number of planes in the column headed "Authorized allowance" may be operated.

(b) Aircraft squadrons, Scouting Fleet

| Authorized allowance per squadron | | Operating allowance |
|-----------------------------------|--|---------------------------------------|
| 18..... | VS-1 Scouting Squadron 1..... | 2 PN; 12 SC. |
| 18..... | VT-1 Torpedo and Bombing Squadron 1..... | 12 SC. |
| 18..... | VO-3 Observation Squadron 3..... | 18 UO. |
| 12..... | VO-6 Observation Squadron 6..... | 12 UO. |
| 12..... | VF-9 Fighting Squadron 9..... | Not yet organized—awaiting catapults. |
| | Aircraft units based on: | |
| | U. S. S. Wright (flagship and tender). | |
| | U. S. S. Sandpiper (tender). | |
| | U. S. S. Teal (tender). | |
| | U. S. S. Patoka (airship tender). | |

VS-1 and VT-1 base on U. S. S. *Wright*; VO-3 bases on nine light cruisers; and VO-6 bases on battleships, Scouting Fleet, until the carrier *Lexington* is placed in commission, after which six planes of this squadron base on battleships and six on the carrier. VF-9 to be organized at Hampton Roads from excess complement of VF-1 and VF-2 now in Battle Fleet and will be organized at Hampton Roads for duty on battleships when catapults are installed. Hampton Roads is the repair base for aircraft squadrons attached to vessels in the Atlantic.

(c) *Aircraft squadrons, Asiatic Fleet*

| Authorized allowance per squadron | | Operating allowance |
|-----------------------------------|---|---------------------|
| 18----- | VT-20 Torpedo and Bombing Squadron 20----- Aircraft units based on: U. S. S. Jason (flagship and tender). U. S. S. Heron (tender). | 12 SC. |

II AIRCRAFT SQUADRONS, CONVOY AND PATROL

Aircraft units assigned to the following stations:

(a) ATLANTIC CONVOY AND PATROL. (NAVAL AIR STATION, HAMPTON ROADS, VA.)

| Authorized allowance per squadron | | Operating allowance |
|-----------------------------------|--|---------------------|
| 6----- | VP-6 Patrol Squadron 6----- | 2 F-5-L. |
| 6----- | VT-12 Torpedo and Bombing Squadron 12----- 2 single-engine seaplanes for training reserves and general utility. 2 single-engine airplanes for training reserves and general utility. | 0. |

(b) PACIFIC CONVOY AND PATROL. (NAVAL AIR STATION, SAN DIEGO, CALIF.)

| | | |
|--------|--|----------|
| 6----- | VP-1 Patrol Squadron 1----- | 2 F-5-L. |
| 6----- | VT-5 Torpedo and Bombing Squadron 5----- 2 single-engine seaplanes for training reserves and general utility. 2 single-engine airplanes for training reserves and general utility. | 0. |

(c) PANAMA CANAL ZONE REGION. (NAVAL AIR STATION, COCO SOLO, C. Z.)

| | | |
|---------|--|-------------------|
| 6----- | VP-10 Patrol Squadron 10----- | 6 F-5-L; or H-16. |
| 12----- | VT-17 Torpedo and Bombing Squadron 17----- 2 single-engine seaplanes for general utility. 2 single-engine airplanes for general utility. | 12 DT. |

(d) HAWAII REGION. (NAVAL AIR STATION, PEARL HARBOR, T. H.)

| | | |
|---------|--|--------------------|
| 12----- | VP-14 Patrol Squadron 14----- | 12 F-5-L; or H-16. |
| 12----- | VT-19 Torpedo and Bombing Squadron 19----- 2 single-engine seaplanes for general utility. 2 single-engine airplanes for general utility. | 12 DT. |

III. AIRCRAFT SQUADRONS, MARINE CORPS EXPEDITIONARY FORCES

Aircraft units assigned to the following stations:

(a) EAST COAST EXPEDITIONARY FORCE. (QUANTICO, VA.)

| Authorized allowance per squadron | | Operating allowance |
|-----------------------------------|---|---------------------|
| 6 | VO-3M Observation Squadron 3M | 6 DH. |
| 6 | VO-4M Observation Squadron 4M | 6 DH. |
| 6 | VF-1M Fighting Squadron 1M | 6 VE-7 SF. |
| 6 | VF-2M Fighting Squadron 2M | 6 VE-7 SF. |
| 1 | ZK-1M Kite Balloon Squadron 1M | 1 KB. |
| | 6 VN training planes for training reserves and general use. | |
| | 4 VJ Martin bombers for transports. | |

(b) 1ST BRIGADE, HAITI

| | | |
|---|---------------------------------------|------|
| 6 | VO-2M Observation Squadron 2M | 6 DH |
| | 2 VN training planes for general use. | |

(c) WEST COAST EXPEDITIONARY FORCE. (SAN DIEGO, CALIF.)

| | | |
|---|---|------------|
| 6 | VO-1M Observation Squadron 1M | 6 DH. |
| 6 | VF-1M Fighting Squadron 3M | 6 VE-7 SF. |
| | 3 VN training planes for training reserves and general use. | |
| | 2 VJ Martin bombers for transports. | |

(d) GUAM REGION

| | | |
|----|--|-------|
| 14 | VP-1M Patrol Squadron 1M | 4 HS. |
| | 2 single-engine seaplanes for general use. | |

IV. ADMINISTRATION, DEVELOPMENT, AND TRAINING

A. NAVY

(1) For administration and work in connection with design, production, inspection, and test of aircraft material:

(a) Bureau of Aeronautics.

(b) Material inspection details.

(c) Details abroad that involve flying.

(d) Detail to the Board of Inspection and Survey that involves flying.

(e) Aircraft units assigned to and based on the following stations:

Naval air station, Anacostia, D. C.

Operating allowance:

6 single-engine airplanes.

2 twin-engine seaplanes.

2 single-engine seaplanes.

Additional planes as assigned for test and experiment.

Naval air station, Lakehurst, N. J.

Operating allowance:

- 1 nonrigid airship.
- 2 single-engine airplanes.
- 1 kite balloon.
- 2 free balloons.
- 1 rigid airship (U. S. S. *Los Angeles*) for development of commercial aviation.

Experimental aviation torpedo detail, Newport, R. I.

Operating allowance:

- 2 single-engine torpedo planes.
- 1 single-engine seaplane.

Experimental aviation ordnance detail, Dahlgren, Va.

Operating allowance:

- 2 single-engine airplanes.
- 2 single-engine seaplanes and such other planes as may be necessary for ordnance tests.

Naval aircraft factory, Philadelphia, Pa.

Operating allowance:

- 3 single-engine planes.

(2) For training of personnel:

(a) Naval air station, Pensacola, Fla.

Operating allowance:

- 40 VN, elementary training seaplanes.
- 20 VN, elementary training land planes.
- 8 VNT, torpedo and bombing seaplanes.
- 16 VNO, observation airplanes.
- 9 VNF, fighting airplanes.
- 37 VNS, scouting seaplanes.

(b) First naval district.

Naval reserve training unit, Squantum, Mass.

Operating allowance: 6 VN.

(c) Third naval district.

Naval reserve training unit, Fort Hamilton, N. Y.

Operating allowance: 6 VN.

(d) Ninth naval district.

Naval reserve training unit, Great Lakes, Ill.

Operating allowance: 6 VN.

(e) Thirteenth naval district.

Naval reserve training unit, Seattle, Wash.

Operating allowance: 3 VN.

(f) Aviation mechanics' school, Great Lakes, Ill.

(g) Postgraduate detail for instruction in aeronautical subjects.

(Includes Massachusetts Institute of Technology.)

- (3) Inactive naval district air stations:
 - (a) Naval air station, Chatham, Mass.
 - (b) Naval air station, Cape May, N. J.
 - (c) Naval air station, Rockaway, L. I., N. Y. (Subject to transfer of land from the State of New York to the Navy Department.)

B. MARINE CORPS

- (1) For administration:
 - (a) Aviation section, division of operations and training, headquarters, Marine Corps.
 - (b) Details to Bureau of Aeronautics.
 - (c) Special details.
- (2) For training of personnel:
 - (a) Details to naval air station, Pensacola, Fla.
 - (b) Details to aviation mechanics' school, Great Lakes, Ill.
 - (c) Details to Navy postgraduate courses on aircraft and aircraft material and appurtenances.
 - (d) Details to Army air organizations and Army air schools.
 - (e) Inactive marine flying field, Parris Island, S. C.

NAVAL PLANES

On July 1, 1925, the Navy had a total of 1,037 airplanes, 860 on hand and 177 on order. Of the 860 airplanes on hand 684 were fit for flight use, 55 were new planes not conditioned for flight on July 1, and 131 were planes whose condition was such that, except in a case of national emergency, the cost of repairs would be unwarranted. Of the 684 airplanes fit for flight use, 196 might be classified as service or first line types, 365 as second line or obsolescent types, 78 as obsolete and fit for use as general utility planes only, and 45 experimental types, built as new types and utilized to carry on further aviation development.

The 1,037 airplanes noted as on hand or on order may be classified into types as follows:

| | | | |
|---------------------------------|-----|----------------------|-----|
| Scouting planes..... | 87 | Patrol planes..... | 124 |
| Torpedo and bombing planes..... | 58 | Training planes..... | 233 |
| Observation planes..... | 303 | General utility..... | 134 |
| Fighting planes..... | 38 | | |

NAVAL AVIATION PERSONNEL

Navy

| | |
|--|-----|
| Total officers..... | 619 |
| Flying officers included in the above: | |
| Naval aviators..... | 376 |
| Observers..... | 5 |
| Flight orders..... | 15 |
| Student aviators..... | 85 |

| | |
|---|-------|
| Total enlisted personnel..... | 3,330 |
| Aviation ratings included in the above..... | 1,709 |
| Qualified pilots included in the above..... | 103 |

Marine Corps

| | |
|--|-----|
| Total officers..... | 82 |
| Flying officers included in the above: | |
| Naval aviators..... | 46 |
| Flight orders..... | 5 |
| Student aviators..... | 19 |
| Total enlisted personnel..... | 871 |
| Qualified pilots in above..... | 12 |

UNITED STATES

VISIT OF COLOMBIAN HYDROPLANES TO CANAL ZONE

[Source, official]

The Dornier all-metal hydroplanes left Cartagena, Columbia, 11.30 a. m., Wednesday, August 12, and arrived at France Field 3.45 p. m. They flew nearly a direct course as they did not strike the Panama coast until they reached a point some 40 miles northwest of Point Obaldia. The distance actually flown was approximately 400 miles. As their flying time was 4 hours, 10 minutes, they averaged about 96 miles per hour. Their speed was increased by a following wind of about 10 miles an hour making their actual speed through the air approximately 86 miles per hour.

The two planes are similar in all respects, being of the "Sesqui-plane" type of construction and built of duralumin throughout except that the two main wing spars and the main struts are of steel and the wings and all control surfaces are covered with fabric. The span of the main wing is 22½ meters and the power plant consists of two Rolls-Royce 360-horsepower motors mounted above the center of the top wing in tandem. The motors are mounted gear end to gear end, and each carries its own propeller. One propeller is right handed and the other left. This, of course, is necessary as the motors face in opposite directions. The normal full-speed revolutions of the engines are 1,900 per minute with a propeller speed, due to use of reduction gear, of 1,200. Each propeller is four-bladed. By using propellers of greater surface and pitch with consequent low revolutions per minute the loss of power due to one propeller working in the slip stream of the other is reduced from the ordinary value of 15 to 8 per cent.

A small plane (Sesquiplane) underneath the boat body of fuselage is used primarily as a point of attachment for the main wing struts, but is of great value when the plane is on the water in flotation

and the preservation of lateral balance, and when in the air the Sesquiplane contributes a certain amount of lift to the hydroplane as a whole.

The weight of these planes is in the neighborhood of 6,000 pounds empty and they can carry safely and without effort, 4,400 pounds of load. Gasoline and oil for 6 hours weights approximately 1,800 pounds, leaving available for passengers, a cargo, or bombs 2,600 pounds. Captain Hammer stated that some of these planes have been built as bombers and are now in use by Italy, Spain, and Argentina. It must be understood that gasoline and bombs are directly complementary. If you want your planes to fly farther, you must reduce the weight of bombs and install extra tanks. If it is not necessary for them to fly far, the gasoline can be reduced and the weight of bombs increased. A plane of this type will burn about 300 pounds of fuel per hour. The present high speed of these planes is about 110 miles per hour and with the use of two Wright 700 horsepower motors a speed of 135 to 145 miles per hour could probably be attained. There, again, there must be a balancing. If your power is increased the weight of the engine is increased, your fuel and gasoline consumption is increased, and the weight of bombs that may be carried is decreased by the weight of the engine and fuel and increased by its additional horsepower. Captain Hammer said that there had been about four planes, similar in type to these but larger, built in Germany just before the close of the war. One of them successfully lifted 6,000 pounds in addition to its own weight. The armistice stopped further building of these planes and so far as he knew they have not been built in Germany or elsewhere. The former plant of the Dornier Co. was part of the Zeppelin plant at Friedrichshafen but with the armistice and the consequent prohibition to Germany of building planes this plant was moved to Marina de Pisa in Italy. He further said that permission had recently been secured for airplanes of this type to be built in Germany again, but with engines of limited horsepower.

The interior of the fuselage is most spacious. In the extreme bow is a cabin which will seat very comfortably 10 people and in which 15 can be accommodated with a slight amount of crowding. The upholstery is most comfortable, being heavily padded and leather covered. An air of luxury prevails. Under the seats of the cabin there is an ice box and a larder in which food and liquid nourishment for several days are carried. Directly in rear of the cabin on the port side is a completely equipped toilet. Directly in rear of the cabin on the starboard side are the pilots' seats. These are raised so the heads of the pilots project over the top of the cabin and have excellent visibility. Two pilots are employed and all controls are in duplicate. The type of control used is identical with that on the Martin bomber

known as the Dep control. In rear of the pilot's compartment is a compartment containing four gasoline tanks of approximately 75 gallons each. This gasoline is sufficient for five hours at full speed of about 110 miles per hour, or eight hours at a cruising speed of about 85 miles per hour. In the fuselage in rear of the gasoline compartment are carried the crew, spare parts, mail, and cargo. On this trip each plane had a total of 5 men, and about 300 letters were carried in one plane. No other mail or cargo was carried.

These planes belong to a German aviation company known as the Seadta whose headquarters, base, and repair shops are located in Barranquilla, Colombia. It was organized several years ago—about 1919—for the purpose of carrying passengers, freight, and mail from Barranquilla to the Capital, Bogota. They have been using, and are still using, the Junker all-metal monohydroplane, and have been very successful. This company paid dividends of 3 per cent in the second year of its existence, and since then has been paying from 6 to 7 per cent. The financial backer of this company is Dr. Peter P. Von Bauer, and he acts as general scientific supervisor and attends to the diplomatic side of the business. He is also responsible for the promotion and maintenance of good feeling. He is very well fitted for this work—he is a Viennese of culture, refinement, and education. He speaks several languages fluently and has a charming personality. When questioned as to the methods of doing business with the Colombians, he stated that so far his company had not had to pay as much as \$100 in graft since its beginning, with the exception of free rides for the President of the country. He explained this unusual condition by the statement that when the company was first organized it was not believed by anyone in Colombia that it could be a success, and now that it has proved successful the Colombian people and their Government look with pride to "their" company and feel that they are more progressive than other Central American countries on account of having an aerial transport service. You may be sure that Doctor Von Bauer has lost no opportunity to flatter them and impress them with the feeling of pride and self-satisfaction above referred to. The company has done considerable work in the way of mapping by means of aerial photography, and in this Doctor Von Bauer has been able to do good work, as he is a geographer by profession.

The opportunities of this company for success in Colombia are entirely unique, and the fact that they have been successful does not, in itself, prove that commercial aviation would be successful elsewhere. It must be realized that the capital of Colombia, Bogota, is situated several hundred miles from its seaport and that the trip by ground and water transportation takes anywhere from 12 to 20 days.

A trip by air is made in half a day, so it can readily be seen that the saving in time is tremendous. Colombia, unlike most countries in the world, does not have a Government monopoly of the postal service, and the Scadta operates its own postoffices, sells its own stamps, and derives all the profits therefrom. The charge for one letter from Barranquilla to Bogota is 30 cents, and the charge for passengers is \$200 up and \$150 back.

The present expedition is one of pathfinding and for the establishment of friendly relations. They left August 14 for Porto Limon, Costa Rica. Arriving there, they will take train to San Jose and establish friendly relations with the Government of Costa Rica. From there they will go to San Juan de Norte, in Nicaragua, and fly up the the San Juan River and over the Nicaraguan lakes to Managua. From there they will fly about 50 miles overland to the Pacific Ocean, stopping at Amapala, on the Gulf of Fonseca, and thence to San Jose, Guatemala. In each country they will visit the capital and will call upon and deliver letters from the President of Colombia to the President. They will then retrace their course to San Juan del Norte, Nicaragua, and proceed up the Caribbean coast, Nicaragua and Honduras, to Porto Barrios. From there they will follow the coast line of British Honduras and Yucatan, crossing the Yucatan Channel to Havana and Key West. They believe it feasible and they plan to establish an air-mail line from Key West to Porto Barrios. This trip can be made in one day, and that night the mail will be shipped by rail across the isthmus to San Jose, Guatemala, and from there by air the next day to the Canal Zone. The next morning a four hours' flight delivers the mail in Barranquilla, Colombia, and mail for southwestern South American ports will be transhipped on steamers from the Canal Zone. Doctor Von Bauer stated that Postmaster General New told him recently that he would assign a contract to the new company (see next paragraph) for carrying mail from the United States to the Canal Zone, Colombia, and intermediate countries as outlined above. The value of this contract would be sufficient to pay the necessary dividends on the capital to be invested. They anticipate a fair amount of business from express packages, inasmuch as a service of this sort would obviate the delay now incident to steamship travel and customs formalities. A special customs service would expedite packages sent by air mail. He does not anticipate a large volume of passenger business, although these planes will carry passengers.

Doctor Von Bauer's present mission, in addition to that above stated, will be to interest American capital in the venture. He thinks this will be forthcoming after prospective investors have been assured of the air-mail contract. A new company will then be

formed with American capital, associated with German-Colombian experience, good will, technical ability, and promotion. This company will be entirely separate from the Scadta and will not operate in the interior of Colombia. The whole project seems practicable and a good investment, provided the mail contract is secured from the United States Government, and great credit is due these people for their energy, foresight, business ability, and financial courage. The cost of the two planes they are now flying was \$50,000 apiece at the factory at Marina de Pisa, Italy, and the pity of it all is that Americans were not themselves the first to push it through.

Capt. F. W. Hammer is the commanding officer of the expedition. During the World War Doctor Von Bauer was an officer in the Austrian Army; he is from Vienna. Captain Hammer and all the other officials of the flight were officers in the German Army and Navy air forces.

63442—25——8



OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME VIII—NUMBER 5

NOVEMBER, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.



CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

VOL. VIII, NO. 5—NOVEMBER, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

CONTENTS

| | |
|--|------|
| ARGENTINA : | Page |
| Americans honored in Argentine naval history----- | 1 |
| English ideas about South American nations----- | 2 |
| CHILE : | |
| Naval note----- | 3 |
| DENMARK : | |
| Miscellaneous notes----- | 3 |
| GERMANY : | |
| Naval notes----- | 4 |
| Treatment of foreign warships in German ports----- | 6 |
| Organization and policies of aviation forces----- | 9 |
| A review of foreign politics----- | 10 |
| Notes on sun compass----- | 18 |
| GREAT BRITAIN : | |
| H. M. S. <i>Nelson and Rodney</i> ----- | 22 |
| Miscellaneous notes----- | 26 |
| ITALY : | |
| Data on Royal Air Force----- | 36 |
| Miscellaneous notes----- | 41 |
| JAPAN : | |
| Naval replacement program----- | 46 |
| Naval personnel----- | 51 |
| Miscellaneous notes----- | 52 |
| Will Japan fight with America?----- | 55 |
| NETHERLANDS : | |
| Naval policy and budget for 1926----- | 70 |
| Aviation note----- | 77 |
| POLAND : | |
| Naval activities—summer 1925----- | 78 |
| RUSSIA : | |
| Summer cruise of Baltic Fleet----- | 79 |
| SIAM : | |
| Trials of <i>Ratanakosindr</i> ----- | 82 |
| SWEDEN : | |
| Naval activities----- | 83 |

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. VIII

NOVEMBER, 1925

No. 5

ARGENTINA

AMERICANS HONORED IN ARGENTINE NAVAL HISTORY

The following is an extract from the lecture recently delivered by Benjamin Villegas Basavilbaso at the Argentine Naval Club:

United States of America has honored names in our maritime history. Seaver, second in command of the naval forces in Martin Garcia, where he met a glorious death; White, the supply officer of the fleet in the year XIV, in which post he suffered ignoble accusations, remaining in misery to the end; the reward arrived half a century later, thus fulfilling the prophecies of Larrea, "the injuries you have suffered, your discredited beliefs, whose payment has been neglected so far, the scandalous confiscation of your possessions, everything, everything will be repaid by a government that can not be unmindful of the justice of your claims"; Chayter, one of our most intrepid corsairs, whose boat first carried the flag of the Republic to the waters of the Northern Hemisphere, "preserving it from all harm"; Taylor, dangerous adversary of commercial enemies, obligated the President of Haiti to observe conduct more convenient to Argentine interests, in addressing himself to the Government said, "fortune has favored completely the efforts we have had the honor to make in the sea the pavillion of liberty of Rio de la Plata"; Carter, the commander of the *Intrepido*, which, joined to the forces of Admiral Blanco Encalada, assisted in the naval operations of the Pacific; Jewett, man of rare energy, navigated a damaged cruiser through the south Atlantic; Almeida repulsed the Antillas with singular cunning, making innumerable captures; De Kay, the most distinguished of the war against the Empire; the Brazilian shore knew his bravery; his encounter with the *Cacique* is daring; Thorne, his life was to fight; in the Patagonion combat he is the first to invade aboard the *Itaparica*; he is the first to go up the river Colorado; his prestige as an artilleryman is recognized by soldiers like Paz; his daring in Obligado where his battery seemed a castle of fire made him a hero; there he remained mutilated; there received the deserved appellation of rendering Obligado insensible.

NOTE.—Commemorative plaques in bronze with name, nationality, date of birth and death are arranged on the walls of a room in the Argentine Naval Club set aside for such purpose. In addition to the above this room also contains similar plaques with the names of French, English, Greek, Spanish, and other nationalities who were officers of the Argentine Navy in the early days of its organization.

ARGENTINA

ENGLISH IDEAS ABOUT SOUTH AMERICAN NATIONS

September, 1925

Following is a translation of an article appearing in *La Prensa*, Buenos Aires:

Will the visit of the Prince of Wales serve to modify the opinion England has of South America? Certainly up to now the visit showed solely that it is necessary for the English people to change its ideas of the countries in this part of the American continent. We do not refer to the painted descriptions of Buenos Aires and the customs of the Argentine people that some newspapers published in England on account of the visit of His Royal Highness: it is a more serious matter of an opinion given by one of the leading newspapers of London in regard to the position of South American countries considered as States with absolute sovereignty as members of the family of civilized nations.

The *Morning Post*, conservative paper, and, as such, voice of the real British Government, publishes in its number of the 17th of this month an article entitled "The Royal Visit to South America," which comments upon the reception of the prince in Montevideo. It records that "the liberty now enjoyed by South American Republics they gained with the help of the English" and that English capital contributed to the development of the industries of these countries. It states later: "Great Britain naturally is devoid of interest in the politics of South America, that being understood to be the object of the paternal solicitude of the United States as a matter of polite convention."

We gather that the true object of the article arose from a dispute between the first lord of the Admiralty Court, who asked an increase in the Navy, and the Minister of Agriculture, who opposed this plan, and was to help the former. In effect, it further laments in course of the discussion that the English living in strange lands have not been mentioned, and says: "They do not only depend on the marine in case of emergency and long for the help of the officers and sailors: the foreign friends appreciate (and with reason) the value of their relations with England and of English commerce, basing their appreciation on the power of the British Navy."

The article in question then refers to an internal question in England that does not interest us: but we can not be indifferent to its observation concerning the political situation of South American countries, that, in its judgment, is "object of the paternal solicitude of the United States," and that England for courtesy or deference toward the great Republic of the North consented that she exercise a sort of tutelage over the South American nations. Only in this manner is polite convention, of which they speak, explained.

It is now certainly time that England realizes that the South American Republics, whose sovereignty is as complete and absolute as that of the Great Britain herself, do not need the "paternal solicitude" of any foreign country, and hopes that the visit of the prince contributes somewhat toward modifying the erroneous opinions and false concepts which have spread until newspapers as important as the *Morning Post* speak in such a manner concerning South American affairs.

CHILE

NAVAL NOTE

Chilean Naval Defense—Probable Orders for Great Britain

The following article appeared in the British press:

VALPARAISO, 25 September.

For some time past the Government has been considering the reorganization of the navy, and at a recent meeting of naval authorities on board the battleship *Latorre* a program of construction was drafted and submitted to the Ministry of Marine.

The dominant idea of the reorganization is to begin with the construction of smaller craft, and it is likely that orders will be placed in Europe for six destroyers, followed later by orders for several light cruisers. Orders have already been placed in Italy for numerous seaplanes, and a special Chilean naval mission is now in Italy to supervise their construction.

It is probable that the destroyers and the other vessels will be built in Great Britain, for President Alessandri, in his remarks when he took farewell of the Prince of Wales, said that he wished the prince would do his utmost in support of a British naval mission to Chile consisting of men capable of giving instruction in the latest advances in naval science.

DENMARK

MISCELLANEOUS NOTES

September, 1925

The activities of the Danish Navy

After extensive discussions the disarmament committee of the Folkething, under the leadership of the former War Minister, has drafted a new disarmament proposal which takes the middle course between the Social Democratic proposal and the wishes of the present Democratic majority in the Government. According to this proposal the Danish forces will consist of 13,000 men. The navy will be charged with the protection of fisheries. All private military organizations are prohibited and conscription abolished. The three naval vessels of the Government proposal is increased to 24. The naval mine service for the blockading of interior waters is again introduced. The annual budget for the army is set at 7.3 and for the fleet at 10.4 million kronen. The law will be put to popular vote.

The navy yard is building seaplanes, four of which are ready, so that the navy will have nine planes of the same normal scouting type. The motors for these planes have also been built in Denmark.

Deepening of the Drogden Channel between the Islands of Amager and Saltholm

Work is now being carried on for the deepening of the Drogden Channel, between the islands of Amager and Saltholm, the work in question being carried out by private firms under the supervision of the director of the State waterworks. The work was begun in 1923, and it was estimated then that it could be completed during the course of two and a half years. This, however, will probably prove impossible on account of the difficult conditions, there being a large amount of rocks and layers of chalk which will have to be removed. The depth of the channel is to be from 8 to 8½ meters and the breadth in the northern part about 250 meters, increasing toward the south to 390 meters.

GERMANY

NAVAL NOTES

September, 1925

Number of officers in German Navy

Line officers, engineer officers, medical officers :

Group B 5: 1 admiral as chief of the naval establishment.

Group B 4: 3 vice admirals.

Group B 2: 6 rear admirals.

1 rear admiral of the engineer corps.

1 general staff surgeon.

8

Group A XIII :

30 captains.

2 captains of the engineer corps.

2 surgeons.

34

Group A XII :

22 commanders.

4 commanders of the engineer corps.

3 chief surgeons.

29

Group A XI :

79 lieutenant commanders.

17 lieutenant commanders of the engineer corps.

18 chief staff surgeons.

114

Group A X :

39 staff surgeons.

Group A IX :

153 lieutenants.

44 lieutenants of the engineer corps.

18 chief assistant surgeons.

215

Group A VIII :

14 assistant surgeons.

Group A VII :

199 lieutenants junior grade.

43 first lieutenants of the engineer corps.

242

Lieutenants junior grade and first lieutenants of the engineer corps who have served more than four years receive the pay of Group A VIII.

Group A V :

165 ensigns.

52 second lieutenants of the engineer corps.

217

Ensigns and second lieutenants of the engineer corps who have served more than four years receive the pay of Group A VI.

658 line officers.

163 engineer officers.

95 medical officers.

Total, 916.

Summer cruise of German fleet

The summer training cruise of the German fleet, which this year, in conformity with pre-war custom, was to Norway, has been completed. The entire fleet took part in this cruise. The ships, which were distributed over a number of ports and fjords, were accorded a cordial and friendly welcome by the Norwegian people. During the sojourn of the line ships in Oslo an erroneous report was unfortunately circulated in the entire German press regarding a salute fired presumably in honor of Amundsen, although it was officially denied as soon as possible. The second salute fired by the ships was actually to the King's standard flying on the palace. According to existing flag and salute regulations, no salute may be fired to a private individual.

After the close of the summer cruise the ships of the fleet participated in Kiel week and the reception of the Swedish fleet in Kiel, which were welcomed in the presence of the chief of the navy de-

partment and were accorded as hearty a welcome as the German ships are always accustomed to receiving in Sweden.

The second half of July was devoted to individual training and preparation for the inspection of the divisions. During the first half of August there was torpedo practice in the Baltic Sea in the presence of the chief of the navy department, all the naval forces participating. This was followed immediately by general artillery practice.

The itinerary of the winter cruise of the German cruiser "Berlin"

| | Arrival | Sojourn |
|---------------------------------------|----------|----------------|
| Ponta Delgada (Azores)----- | Sept. 17 | About 4 days. |
| Bermudas----- | Sept. 30 | Do. |
| Port au Prince (Haiti)----- | Oct. 9 | About 17 days. |
| Colon (Panama)----- | Oct. 30 | About 3 days. |
| Guayaquil (Ecuador)----- | Nov. 6 | About 5 days. |
| Callao (Peru)----- | Nov. 14 | About 7 days. |
| Valparaiso (Chile)----- | Nov. 27 | About 9 days. |
| Valdivia (Chile)----- | Dec. 8 | Do. |
| Punta Arenas (Chile)----- | Dec. 22 | Do. |
| Puerto Madrin (Argentina)----- | Jan. 2 | About 14 days. |
| Buenos Aires (Argentina)----- | Jan. 20 | About 6 days. |
| Montevideo (Uruguay)----- | Jan. 27 | About 3 days. |
| Rio de Janeiro (Brazil)----- | Feb. 6 | About 6 days. |
| Bahia (Brazil)----- | Feb. 16 | About 3 days. |
| St. Vincent (Cape Verde Islands)----- | Mar. 1 | About 2 days. |
| Vigo (Spain)----- | Mar. 11 | About 6 days. |
| Kiel----- | Mar. 23 | |

GERMANY

TREATMENT OF FOREIGN WARSHIPS IN GERMAN PORTS

[From Marineverordnungsblatt No. 22 of September 1, 1925]

The regulations relative to the admission and treatment of foreign warships in the ports and waterways on the German coast, dated May 24, 1910, issued in the Marineverordnungsblatt of 1910, under No. 193 on pages 224 to 225, will be replaced by the "regulations relative to the admission and treatment of foreign warships in the ports and waterways on the German coast." dated August 1, 1925, reprinted in the following paragraphs.—(Administration of the Navy, August 20, 1925. A. II, c. 2406.)

Regulations governing the admission and treatment of foreign warships in the ports and waterways on the German coast.

[The term "warship" in the following regulations embraces all foreign ships, auxiliary ships, and transport ships entitled to fly the battle flag.]

SECTION 1. The warships of foreign powers in order to call at fortified and nonfortified ports and estuaries do not require any special permit. Neverthe-

less due notice of the impending visit is necessary, such notice to be submitted through diplomatic channels. (Should there be aircraft on board said foreign warships, information of the fact must be given in said notice.)

Without such notice foreign warships, with the exception of those enumerated in section 2, are neither permitted to cross the outer line of fortification nor to remain in the roadstead or in the harbor and/or river estuaries respectively.

With respect to the use of the Kaiser Wilhelm Canal see section 3.

The number of warships belonging to one and the same foreign nation, permitted to remain at one time in a fortified or nonfortified port, etc., is as a rule restricted to three. The visit must not exceed a period of 14 days. Exceptions require official permission, to be applied for through diplomatic channels. Submarines are forbidden to move in German territorial waters when submerged.

Sec. 2. The foregoing regulations do not apply to:

(a) Ships having on board heads of state or members of ruling families or diplomatic representatives accredited to the German Reich.

(b) Ships which in consequence of grave distress are driven to seek refuge in a German port, etc.

(c) Vessels engaged in fishery supervision in the North Sea in accordance with the North Sea fisheries treaty, the names of which have been notified to the German Government through diplomatic channels.

Sec. 3. The passage through the Kaiser Wilhelm Canal is free to foreign warships without special permission. Due previous notice through diplomatic channels is expected as an act of international courtesy.

Sec. 4. In ports which are fortified or garrisons of the defensive forces, the pilot office, and, in places where there is not official pilot office, the pilot association shall notify the local naval officer in command (chief of naval station, commander of fortification, senior local officer) immediately of the approach or the arrival of a foreign warship. In the same way the harbor captain or harbor master shall report to the authorities that a foreign warship has put in.

The officers in command of the military forces shall notify the arrival of foreign warships by telegraph to the naval commander in chief, to the competent command of the naval station and to the district command of the defensive forces.

In ports which are headquarters of district command of the navy, the reports of the pilot office, harbor captains, or harbor masters will be forwarded to the chief officer in command of the said headquarters, who on his part will arrange for the immediate notification of the commanding officer on the spot, and who will also undertake the transmission of the report to the authorities quoted in section 2 of this paragraph.

The following ports are deemed to be fortified by garrisons of the defensive forces or headquarters of naval commands.

Pillau, Königsberg, Kolberg, Swinemünde, Stettin, Greifswald, Stralsund, Rostock, Lübeck, Kiel, Flensburg, Mürwik, Hamburg, Cuxhaven, Bremen (including harbors on the Lower Weser), Wilhelmshaven (inclusive of Schillig), Emden, Borkum.

In all other ports the police authorities will notify the authorities enumerated in section 2 of this paragraph by telegraph of the arrival of foreign warships.

In addition pilot officers, and, in places where there are no official pilot offices, the pilot associations shall immediately notify the harbor and police authorities of the approach or the arrival of a foreign warship.

SEC. 5. Within the districts of the war harbors of the Reich, Kiel, and Wilhelmshaven, in the roadsteads and in the harbors of the fortified ports of Borkum, Cuxhaven, Swinemunde, and Pillau the right to allocate anchorage or berths to foreign warships, and, should a change of anchorage or berth be necessary, the right to demand that such change be made is vested solely in the chief of the naval station or the officer in command of fortifications, who shall put himself into communication with the harbor, customs, and pilot authorities in order to be in a position to give due consideration to the interests of the latter in connection with the entry and berthing of the foreign warships.

The pilots in the above-mentioned ports must be notified in due time of the permission to enter and the berthing places.

SEC. 6. Foreign warships are under no obligation to engage the services of a pilot in entering the roadstead and going to their anchorage or mooring places. Within the lines of fortifications, however, or within the limits of a German port they are subject to the local police regulations.

SEC. 7. If the harbor-police regulations are infringed by a foreign warship, the first step is to draw the attention of the ship's commander to the fact, and to urge him to arrange for strict compliance with said regulations. Should this measure fail to achieve its object, the foreign warship may be called upon to quit the harbor forthwith. Should this also fail to procure redress, the competent authority (harbor police authority) shall apply to the superior authorities for instructions, and, in the event of danger being imminent shall proceed as may be most expedient on its own authority.

In ports, however, which are fortified, or garrisons of the defensive forces, or headquarters of a naval command, the military authorities shall be kept informed of any measures that may be taken. The demand to leave the port will only be made after an understanding has been arrived at with said military authorities.

A demand to leave the port forthwith will furthermore be made when a foreign warship or squadron (after having been informed by an officer by order of the German commanding officer on shore that the crossing of the fortification and harbor boundaries or further stay in the harbor or roadstead could not be permitted) continues its course or continues to remain, although not compelled to do so by grave distress.

SEC. 8. In ports which are naval garrisons or headquarters of a naval command the senior naval officer in command will dispatch an officer to welcome foreign warships putting into such port. In nonfortified ports the harbor captain or harbor master has the right to accompany the reception officer.

SEC. 9. The officer in question shall inform the commander of the foreign vessel officially as to whether the ship is permitted to enter and how long it is permitted to stay in roadstead or harbor.

He, and/or the harbor captain or harbor master accompanying him respectively, will allocate to the commander of the arriving ship or flotilla an anchorage or berth, and notify him of the prevailing harbor police regulations applying to his case. The officer will furthermore request to be informed of the name and rank of the ship's or squadron commander, the names of the ships, port of sailing, object of the visit, length of intended stay, and the health of the crews. If the foreign commander notifies the reception officer of his intention to remain in the roadstead or to enter the harbor, the officer will offer his services to accompany an officer to be dispatched to the German naval commander of the port for the purpose of formal official report.

SEC. 10. In the event of a foreign warship as an exception entering a port at night the reception officer will not be dispatched to greet the foreign vessel until the morning, but if possible immediately after morning quarters. In

such case the ship may anchor where she pleases, or if she has engaged a pilot, as directed by him, but shall be required to change her moorings if requested to do so.

SEC. 11. In the event of the officers sent to welcome a foreign warship putting in at daytime not arriving on board the latter until she has anchored or taken up her moorings, the prescribed ceremonies of welcome, information, and inquiries, likewise the subsequent confirmation of the anchorage selected, or the allocation of a different anchorage, will nevertheless be proceeded with.

SEC. 12. Should the foreign commander not evince any particular disposition toward the officer sent to welcome him, with respect to sending one of his own officers to report the arrival of the ship or squadron to the German commander on shore, the reception officer shall forthwith return and make his report to the commanding officer who sent him.

SEC. 13. In ports where there is a saluting battery the battery shall fly the battle flag. The flag will be hoisted whenever a warship approaches. The salute fired by foreign warships before anchoring, or in exceptional cases after anchoring, will immediately after the last gun be answered by said battery with the same number of guns.

SEC. 14. When a foreign warship or squadron enters a port which is not a naval garrison or headquarters of a naval command, the harbor police authorities will make the inquiries prescribed in section 9; in the event of the port being a garrison of the defensive forces they will report to the commanding officer, otherwise to provincial police headquarters. The report will forthwith be transmitted to the authorities enumerated in paragraph 4, section 2.

The President of the Reich:

(Signed) VON HINDENBURG.

The chief of naval administration (by deputy):

(Signed) PFEIFFER.

The minister for the defensive forces:

(Signed) Dr. GESSLER.

BERLIN, August 1, 1925.

GERMANY

ORGANIZATION AND POLICIES OF AVIATION FORCES

There are no military nor naval aviation forces in Germany, being prohibited by the treaty of Versailles. The interallied commissions of control are still in Germany to see that these treaty terms are not violated.

Commercial and civil aviation are extensively developed and given all possible encouragement. It is controlled by the aircraft section, traffic department, (Reichsverkehrsministerium) of the German Government. Although the country is not a signatory to the International Air Navigation Convention of 1919, the Germans regulate their own traffic to conform as nearly as possible with the terms of this convention.

The development of commercial aviation is very much hampered by the restrictions placed upon the speed and horsepower of German planes, but in spite of these restrictions, great progress is being made.

The Government is attempting to force a settlement of this issue by a law which prohibits planes from flying over German territory having greater speed or horsepower than that permitted German planes.

There are two main air transportation companies in operation in Germany—the Junkers Luftverkehr A. G. and German Aero Lloyd A. G. There are also some smaller independent companies.

Complete information as to the air routes covered by all companies operating in Germany, as well as between Germany and foreign countries, is given in the Reichsvertehrkursbuch issued by the Reichsverkehrsministerium.

There are no government-owned landing fields. Ownership of such fields varies; many are owned by the towns or cities in which located; others are partly owned by the cities and partly by private companies. In Berlin the landing field is owned by a mixed company. The landing fields are maintained by the owners. Companies which use the fields pay a yearly rental. Individual planes which only use a field from time to time pay a fee for each landing.

Planes, as well as pilots, are licensed by the Government and undergo a periodic examination.

Financial assistance in the form of annual subsidies are furnished commercial air companies by the Government, and it is intended to continue such subsidies until commercial aviation is self-supporting. In addition the Government pays for the carrying of mails.

There are many societies in Germany for the promotion of aviation. Practically all of these are branches of a central organization called "Deutscher Luftfahrt Verband" (German Aviation Union). The principal objects of this union are the promotion of aviation in every way; the collection and publication in the press and periodicals of aviation information and illustrations; lectures and moving picture shows; furnishing lecturers, also the promotion of amateur and sport flying and the holding of aviation meets.

GERMANY

A REVIEW OF FOREIGN POLITICS

[From the German press]

The old standing antagonism of British and Russian interests, which has grown to be the leading principle of England's postwar foreign policy, has been brought to an acute stage by the recent events in China.

The London press has started an energetic campaign against Russia, which is supported in Parliament by the unofficial standpoint taken

in this question by the State Secretary for India, Lord Birkenhead, to the end of inducing a modification of England's relations to Russia. This action is obviously called forth by Russia's growing ascendancy in China, attention being called to all the most salient effects of Russian antagonistic influence, such as the decision of Chinese Mohammedans to send delegates to India and other British protectorates in order to stir up dissatisfaction against the common enemy—Great Britain; British influence in Afghanistan destroyed and superseded by that of the soviets; the danger to Great Britain's Persian possessions, arising from strong Russian opposition to British petroleum concessions as well as from the nationalistic propaganda, conducted here as elsewhere by the soviets and evidence by the recent Turkish revolt. The red thread of Russian influence winds all over Asia, being especially prominent along the frontiers of British spheres of influence. The soviets are besides slowly gaining ground both in the plains, by stirring up the peasant question, and in the ports by communistic propaganda. London is growing nervous and increasing pressure is being brought to bear upon Chamberlain in order to effect a breach with Russia. The sharp tone of the London press is also possibly partly due to the feeling that even if the soviet minister, Rakowsky, were invited to leave the country, this would be a political gesture which could scarcely substantially further British interests in the East, but which would undoubtedly consolidate the position of the French ally.

The Chinese movement is not unreasonably qualified by the Soviets as a nationalistic movement. But the attention of the Russian press is especially drawn toward the Baltic Sea, which has become the arena of unusual naval activities. The Russian Baltic Fleet has started on a practice cruise to the Swedish coast and back over Bernholm and along the coast of the Baltic States. At the same time a strong British squadron has come on a visiting cruise to the Baltic Sea. It is at present lying at anchor in Riga, Memel, and Reval, and Moscow is presumably not far wrong in regarding this visit as an unostentatious naval demonstration. Its vigilance is furthermore claimed by another circumstance, namely, the work recently begun in Denmark for the deepening of the Danish side of the Sund. When this work is completed, the largest warships will be able to pass through the Sund in front of Copenhagen. The *ISVESTIA* stated openly that these works are financially assisted by England and calls attention to the necessity of strengthening the Soviet navy. The three ministers, Krestinsky, Rakowsky, and Krassin, are meeting at Moscow, presumably with the object of fixing the lines of Soviet European policy. But one can not help thinking that this conference is almost void of significance when com-

pared with the political activities of Karakhan at Peking and of Viktor Kopp in Tokyo. Russia's war against Europe follows a circuitous path over the Asiatic continent, and the name of the Russian minister in Peking is undoubtedly much more frequently mentioned in the British Foreign Office than that of the Russian minister in London.

Certain developments in England, however, in connection with the social crises are enabling Moscow influences to gain a footing on British soil. The English trade-unions have followed independent lines ever since the dissolution of the Workers Triple Alliance in 1921. Owing, however, to the present mining crisis, the mine workers have been obliged to look for rapprochements, and the secretary of their union, Cook, an undoubted partisan of communism, has become the leader of a movement tending to unite the three former unions of railway, transportation, and mine workers, to which have adhered the engine and ship workers, into one great trade-union. The research trip of the British trade-union delegated resulted in an agreement between the British and the Russian workers unions. The former undertook to mediate between the Russian trade-union and the Amsterdam leaders and to work for the establishment of a wide cooperation of all parties. This leads us to infer that Russia not only holds Asiatic trumps in her hand but that she has a good chance of making good her influence in Baldwin's social policy as well.

The isolation of English policy has never been as clearly evident since the war as it is at present in China. The neutrals, France and Italy, stand aside offering proposals of mediation: Japan, so highly courted recently by the British press, refuses to act in concert with England and inclines toward a separate agreement: certain American missionaries have openly declared their sympathies with the demonstrators, and Borah answered the protests of the American Board of Commerce with a philippic against mercantile imperialism. Since centuries British colonial policy has stood for the personification of European colonial policy, but recent events point to the fact that Great Britain is slowly dropping to the rear. The former unified front of the "white race" under Great Britain's precedence, although still partially maintained in face of the disorders in some of the Chinese ports, has completely collapsed as regards the boycott. The Germans in China wear the white band and proceed with their respective occupations undisturbed by the boycott, thus enjoying some small compensation for the concentration camps of 10 years ago. The unified political front has ceased to exist, and London is beginning to understand the consequences of the treatment meted out to Germany during the war and her exclusion from the rights of extraterritoriality. The British meth-

ods of procedure have not changed, however, as evidenced by the portentous note handed to Germany by the Ambassadors' Council, and which would never have been issued but for England's dissatisfaction with the results of the separate British-German air negotiations. The isolation of British policy testifies to the fact that, although it is the best of the old school as regards traditions and style, it is proving increasingly inadequate for present conditions when moral ascendancy is gradually growing to be the main factor in politics. British influence in the Near East, in Persia, and especially in China has had to yield before American tactics, which are untrammelled by traditional rules and are governed by a curious blending of capitalism and cultural mission. Long-standing political tradition has developed a British pride of race which fetters their freedom of action; and whenever the British ambassador in Peking makes a cautious move toward a more conciliatory attitude his attempts are frustrated by the protests of British merchants trading in the ports. There is little doubt that the future leadership of European foreign policy will not lie in the hands of Great Britain.

The tension of the Chinese situation has not abated, although no new disorders have occurred for some time. Our Peking correspondent thinks that, owing to the heat of the summer months, no new developments are likely until the autumn. The students have left the towns for their holidays and are busy spreading the movement in the country, where comparative quiet has reigned until now. An aggravation of the situation may certainly be expected in the autumn, the more so as Tchang Tso Lin and his son have been called back to Mukden, owing to the disturbances in Manchuria, and the radical general, Feng, has again risen to power in Peking. Apparently he wishes to seize the occasion in order to strengthen his position in the nationalistic movement. He has issued a proclamation to the effect that he intends fighting to the utmost, if necessary, thereby forcing the central government to hold firm. The mediative suggestion of the neutrals, proposing to intrust the negotiations to a commission of three, from which both England and Japan should be excluded, was frustrated by the protests of the British traders. On the other hand, strong pressure is being exercised by America to the end that a conference be called for the abolition of extraterritorial rights. Should this end be attained, it would mean a great moral success for America and an open defeat of British policy. The negotiations in Peking do not, however, concern the southern provinces. The radical government of Canton, having formed itself into a committee of seven, acts on independent lines. It recently issued a very unpleasant note to the foreign consuls in Canton concerning the shooting in the Shameen district, demand-

ing apologies from the consuls as well as the evacuation of Shameen and the departure of foreign warships. There is reason to fear further unpleasant surprises in Canton.

Colonial policy has at present acquired a very different aspect from that of pre-war times. The increasing growth of parliamentary opposition at home testifies to the abatement of the former unanimous tendency toward national expansion. Besides this, the fear of international complications and of extra expenditures makes colonial warfare an object of grave apprehension. Such is the case in the Morocco war as well as in the Madrid conference, which has come to a standstill after the blockade agreement, pending the arrival of the two chief representatives—Rivera, who is returning from Morocco, and Malvys, to whose suggestion the conference is due. This is a sign the essential questions will now begin to be discussed. Both the French and Spanish press have suddenly called attention to the fact that too much has been sacrificed in Morocco for any foreign interference to be tolerated. The British Ambassador, who was the only diplomatic representative at the inauguration banquet of the two delegations, has suddenly left for London. Spain will undoubtedly claim a definite settlement of the Morocco possessions, as she did unsuccessfully once before at the Tangiers conference of 1923, the Tangiers harbor being the only object of interest for Spain in the Madrid conference. At a session of the Chambers, Painlevé recognized the independence of Abd-el-Krim in the Spanish zone and spoke of the possibility of an economic agreement with the Kabyl leader; he will, therefore, be obliged to offer Spain an equivalent compensation. The regulation of the Tangiers question requires the support of England and will certainly arouse protest, especially from Italy, unless France proves conciliatory in the Tunis question. The Morocco war has not as yet given either of the antagonists the decisive success which would draw the irresolute native tribes over to the winning side. Abd-el-Krim has shown greater energy of late and has obtained a few minor successes; the blockade of the Riff coast has not as yet furnished any appreciable results, and the fact that both antagonists are up to now very equally matched seems to speak in favor of Abd-el-Krim.

The conflict of the Greeks and southern Slavonians in Greece has led to a military coup d'état which has raised General Pangalos to power. He has come to a temporary agreement with his rivals and obtained a vote of confidence from the Chamber. Similar events in Greece have always run the same course in the last 100 years; each successive party having seized the reins of government, promptly breaks up, owing to the personal ambitions of its leaders,

and party strife is nothing but the rivalry of political leaders in the pursuit of power. The recently proclaimed measures show that Pangalos intends to increase the armaments and to organize the army, thus affording some satisfaction to the Greek officers who had become restive after the defeat of Asia Minor. Pangalos seems inclined to establish a sort of Fascist government which, however, will hardly be long lived, judging from the experience of the five previous military coups d'état. The most important factor will be the attitude assumed by the Foreign powers—England, France, and Italy—having rival interests in the country. Pangalos declared explicitly that no modifications were to be made in the recently concluded agreement with Turkey. The Greek fleet, which is being reorganized by a British admiral, is to be increased, and it is curious to observe the points where Greek and British apprehensions meet. A short time ago Turkey decided to have the *Goeben* repaired by German engineers. There ensued an energetic protest from England, Turkey having previously declined the offer of British organizers for her fleet and in other cases reduced their activities within much narrower bounds. The apprehensions of the Greek Government have also been aroused by the *Goeben*, and the cruiser threatens to become a center of disturbance, both in the Aegean and the Black Seas.

The Baltic problem

The roar of salute salvos breaks through the calm of the summer seas: an atmosphere of busy excitement pervades the shores of the Baltic Sea. The British naval squadron is visiting the Finnish port of Helsingfors, an open testimony to the political intentions of the British world empire. Red Moscow is to be cut off from the world by a defensive rampart, or, if needs be, by more energetic methods of intervention.

Can this plan be realized? Finland's policy is strongly influenced by the fear of its great eastern neighbor. Her home policy follows its usual tranquil course. The enthusiasm on behalf of the idea of a common ugro-Finnish culture is nothing but a superficial mood to which no greater importance attaches than to a feeling of political sentimentality toward people of a kindred race. Finnish policy is clear-headed and shrewd and is perfectly well aware that it must seek the support of solid factors of power in order to strengthen its position. Political moods are merely surface ripples on the tide of political life. This is exemplified in the case of the unpopular Swedish element, numbering about 11 per cent of the population, which is being slowly driven into the background and forced to relinquish its predominant position in social and economic life.

These internal antagonisms do not, however, prevent the Finnish Government from being on very friendly terms with its Swedish neighbor, as was shown by the reception given to the Finnish president in Stockholm—an event which bore equal witness to the skill of both the Swedish and the Finnish political leaders.

It is above all the eastern frontier which is the object of unceasing vigilance. The history of the last century and the events of 1918 offer sufficient reasons for the apprehension with which Finland watches her eastern borders. She is not sure that the red danger which threatened the country in 1918 may not arise anew. In spite of repeated asseverations of innocence, she does not believe Moscow to be quite free of aggressive tendencies or quite disinterested in the northern frontier.

There is undoubtedly a very strong desire in Moscow to prevent Finland's adhesion to the Baltic entente, to withdraw her from the sphere of British influence, and to separate her from the other Baltic States. Finland has the choice either of submitting to British ascendancy and serving as buttress in the British rampart against Moscow or of striking out an independent road for herself with the support of Sweden and Germany. There are signs tending to show that Helsingfors inclines toward the latter course.

No binding agreements have been concluded between Finland and the other Baltic States in spite of the cordiality shown to the President of the Finnish Republic at Reval and of the particular stress laid upon the community of language and race. The realization of Britain's plan of a Baltic entente seems a long way off, because the dangers arising from such an anti-Soviet alliance are very clearly realized by the Finnish Government.

Certain historical antagonisms must be overcome, however, and the badly shaken confidence in the national sincerity of the Russian revolution must be restored before a friendly understanding with the Soviet Union can be achieved. There is nothing to prevent it from a practical standpoint. Russia and Finland have never been connected by any very close economic ties, the latter always having had its own customs frontier and separate currency. It led an independent political life; the Czars bore the title of "Grand Dukes of Finland," and whenever repressive measures were applied they were due rather to dynastic tendencies than to actual political considerations.

Nothing practically stands in the way of an agreement between the two countries, not even the east Karelian question, which has been provoked mainly by the ultranationalism of a few hot-heads on both sides. The only real obstacle is Finland's fear of red imperialism.

That is the reason why the Finnish people entertain a "defense corps" of 100,000 irregulars besides a perfectly disciplined army of 30,000 men. The same feelings of anxiety influences their usually cool political sagacity, causing them to seek external support and bringing indecision into their foreign policy.

Finland's deeply rooted parliamentary traditions and the calm tenor of her political life prevent any strong outward manifestations of these internal discordances, although a change of cabinet is expected in the autumn after the return of Parliament. Party strife assumes calm and practical forms and even the conflict with the Swedish minorities is carried on unostentatiously and without violent shocks.

The stubborn, hard-working, and sober-minded Finnish people have succeeded in attaining a high standard of cultural development. The pretty town of Helsingfors looks like an enchanted city of marble palaces in the luminous twilight of the northern nights. The stately residence of the Swedish Embassy stands on the quay like a token of Swedish power and simple earnestness. One is struck by the honesty and discipline of the people. The red blaze of the St. John's fire on midsummer night are a remnant of ancient Germanic customs. But the Finns do not like to be reminded of the Germanic soil out of which their present culture has sprung. They want to be an independent race, and they regard all Germanic elements at home with the same stubborn and silent hostility as they do Swedish elements. The strength of these feelings is too little realized in Germany, where we attach too much importance to a common past record of Germanic culture. In this point Sweden shows greater adroitness, and the internal conflict between the two nationalities does not hinder the friendly understanding between the Kingdom of Sweden and the Finnish Republic.

Riga and Reval are fighting for an independent existence, but they have not much faith in the possibility of success. Economic crisis follow each other in quick succession, and a satisfactory economic status is unattainable independently of the great Russian hinterland. The danger of the passage of Russian troops (transit) hangs over Esthonian economic life like the sword of Damocles. There is a very strong feeling that the present status is only a temporary one and that provision must be made for some final settlement. The same conflict against national minorities is being waged here as in Finland, but more blunderingly and with greater acrimony, the most effectual weapon being the agrarian reform which is to finally evict the Baltic Germans out of their hereditary homesteads. While the ship of the state is being steered from day to day between dangerous cliffs and currents, another question is being debated in the privacy

of cabinets, namely the possibility of coming to an economic agreement with the soviets without entering upon a political pact. At present there seems no option but that of an opportunistic policy and such resistance to British and Russian influences as home resources allow.

Moscow has no intention of starting a military campaign against either Finland or the Baltic States. It is not interested in the former and it can wait until Lettland and Esthonia drop like ripe fruit into the lap of an economically powerful Russia. It does not need them particularly; in fact, it does not need them at all. A few years ago Moscow proposed a pact of disarmament and guaranty of the frontier, but British and French influences intervened. The apprehension of an alliance between the Baltic border States under British leadership continues to be strongly felt in Moscow and soviet diplomacy is busily engaged in checkmating British influences.

The visit of the British squadron is an obvious demonstration against the red Republic. The Russian naval fleet has retaliated by sailing out to sea. The Scandinavian fleet manifests its friendly attitude toward the Baltic States without any definite political purpose. On land the parliaments have adjourned for their summer holidays, political life is dormant, but the sea has become the arena of far-reaching and conflicting political interests. England is endeavoring to close the iron circle, soviet diplomacy is making counter maneuvers, hinting incidentally that the Russian bear could bite if he wanted to: the old kingdom of Sweden is engaged in a dignified but very persistent pursuit of ascendancy in the Baltic States. It is not actuated by any aggressive purposes, but it is endeavoring step by step to obtain a leadership which will rescue the Baltic States from the turmoil of world politics and lead them back into the peaceful routine of local Baltic interests.

GERMANY

NOTES ON SUN COMPASS

The translation of a special article by Dr. Werner Bloch in the Berlin Vossische Zeitung regarding the sun compass. Amundsen states that he made preeminent use of the sun compass for all his bearings throughout his polar expedition. The following is a description of the purpose and construction of the sun compass by a specialist.

Every traveler in unexplored regions of the globe has a proper appreciation for his compass, which he knows to be the only sure guide through the tangled maze of jungle and forest. The com-

pass owes its directing quality to the interaction of its own magnetism and that of the earth. The earth acts upon the needle of the compass like a large magnet, its poles being situated close to the geographical poles. That is why the needle in our latitudes points approximately to the north—approximately but not exactly because the magnetic pole does not coincide with the geographical one. The magnetic pole of the Northern Hemisphere was discovered by Capt. John Ross on May 1, 1841. It lies near the peninsula of Beethia Belix, 69° latitude by 96° W. longitude. It is not stable, however, but moves slowly eastward, apparently describing a circle round the North Pole. All our magnetic needles point toward this pole, thus showing a westerly deviation which lessens in proportion as the pole travels eastward. This, however, is true only for Europe. In America the deviation varies. In some regions the needle points due north, whereas in the west it shows an easterly deviation. But in all cases the deviations in our latitudes are so small that for general practical use the needle may be regarded as pointing north. In Germany the deviation is equal to about 9° . The nearer one approaches to the pole the more the deviation increases until the needle loses all its value as a bearing instrument.

Now, every traveler knows that he can use the sun as a compass provided he has a watch. In our latitudes the sun always stands in the south at midday, in the east at 6 o'clock in the morning, and in the west at 6 o'clock in the evening. It describes a semicircle in the time that the hand of our watch describes a whole one. If we had a watch whose hand described a circle in 24 hours, we would only need to set the hand at the sun and the Figure XII would always point south. We can obtain the same result with our own watches. A hand moving half as quickly as the hand of our watches would always point to the middle of the arc between XII and the ordinary watch hand; from midday to midnight it would halve the arc behind the watch hand, and from midnight to midday the arc in front of the watch hand. As explained above, one would only need to turn this middle point toward the sun and Figure XII would point due south.

Such is the principle of the sun compass that guided Amundsen on his polar expedition. Both the magnetic and the gyro compass are useless in polar latitudes, but the sun is visible in summer throughout the 24 hours unless it is hidden behind clouds. A sun compass consists of a telescope whose free end describes a circle around a vertical axis in 24 hours. If this end is set at the sun it will follow the sun's course exactly. The sun picture formed by the lens may be thrown by a reflector on a plate of opaque glass. As the telescope keeps pace with the sun the picture will occupy a fixed

point on the plate as long as the compass does not change its position. As soon as the compass is moved the picture will shift accordingly.

This compass may be used most effectually in the following manner: Before starting, the pilot determines the direction he intends to follow and turns his plane in that direction. The sun compass being furnished with a graduated dial, he fixes it in such a manner that the sun picture lies exactly in the center of the plate. Having fixed the compass on a level with his eyes he can now steer straight at the sun picture as if it were a distant goal. If he swerves to right or left the sun picture will immediately shift and will only return to its center point when the plane regains the original direction.

This compass can only be used in polar latitudes, because, strictly speaking, its axis should be parallel to the axis of the globe. The inaccuracy arising from simply fixing the axis vertically is so small in the neighborhood of the pole that it need not be taken into consideration.

It should be held in mind that the compass points a fixed course only in reference to a point on the surface of the earth but not in reference to a heavenly point. If, for instance, one sets it due north it would point due south as soon as one flew over the pole. A man walking due west around the pole would in time describe a circle around it. But if he fixes the sun compass in a westward direction he would fly in a straight line past the pole and southward until he reached regions where the compass could no longer be used. There are no heavenly directions at the pole; if a man pointed his hand all around the horizon he would point always south.

The North Pole seems to have the same attraction for human beings as the magnetic pole has for the compass needle. Amundsen has hardly returned from his expedition than Eckener is making ready for a new one. Perhaps the little beacon of his sun compass, shining steadily in the north, will help him to attain his goal.

A further article on the sun compass, taken from the Deutsche Allgemeine Zeitung of June 28, 1925

The Dornier Wal type of airplane has become universally well known owing to Amundsen's polar expedition and numerous other successful flights, such as that of the Spaniard, Franco, to the Canary Islands, and that of the Italian, Locatelli, over the ocean. It is built by the S. A. I. di Costruzione Meccaniche Pisa in Marina di Pisa, which executes the designs of Dornier, Germany not being permitted to build aircraft of such size and power. Nevertheless it is a product of German creative genius, and we have the right to be proud of it. The span width of its wings is 22.5 meters; its length is

17.25 meters. Its maximum speed is 190 kilometers; its mean speed (which was used by Amundsen) is 150 kilometers. It is built throughout of best-quality steel and duraluminum. The boat (width 2.5 meters) is divided into several water-tight compartments and is furnished at the sides with the floats which are a peculiar feature of the Dornier flying boats and which insure its stability on water. It is only owing to these floats that it has become possible to build flying boats for the high seas. The flight apparatus is that of a monoplane; its height above the boat is such that even in a heavy seaway it does not come into contact with the crests of the waves. The motor consists of two 360-horsepower Rolls Royce motors, fixed in tandem style in a motor gondola above the wings. They drive the propeller. This arrangement allows flight with one motor without detriment to the steering capacity.

Both of Amundsen's airplanes started with a freight of 3,050–3,100 kilograms. The machine itself weighs about 3,300 kilograms, the freight weight being thus almost equal to that of the machine, a feat which had never been performed before by big airplanes, and especially by seaplanes.

The bearings taken at each of the camping places of the polar expedition were made with the help of the Goerz sun compass. The bearing instruments usually employed in ocean and air navigation, such as the magnetic and the gyro compass, are of no use in arctic latitudes, owing to the vicinity of the magnetic and the geographical poles, and they have to be replaced by some other appliance. The only available bearing factor is the sun. The rotation of the earth produces an apparent revolving motion of the sun around the earth, with the latter's axis as rotation axis. If a sighting instrument such as a revolving telescope were fixed with its vertical axis parallel to the earth axis and its head reflector furnished with a clockwork, causing it to describe a complete circle in 24 hours, the rotation of the earth would be eliminated for the observer. As long as the position of the telescope in reference to the earth is constant, the observer will see the sun in the telescopic field of vision; but if the position of the base changes—that is, if the course of the airplane swerves—the sun picture vanishes out of the field of vision. A telescope of this type is best adapted for bearings in arctic regions, where the vertical very nearly coincides with the earth's axis. The telescope should be furnished with a correcting prism for the passage of the light rays, in order to prevent the inversion of the pictures. The inversion of a round object such as the sun disk would not matter, but the direction of the movement is inverted as well, and this would make the instrument almost worthless. A telescope should therefore be used. The light ray from the sun falls upon a reflector, which can be adjusted to the declination of the sun. The ray is

reflected upon the telescope lens, which throws the picture upon a plate of opaque glass fitted in front of the pilot at eye level. Various appliances permit an adjustment of direction and time, in order that the movement of the clockwork may at any moment be compared with a reliable watch. The sun compass must be fixed according to the intended course, whereupon, having started, the pilot only needs to keep the sun picture in the middle of the plate in front of him. He can steer straight at it as if it were really what it seems to be—a beacon light at an infinite distance along the line of the intended course.

GREAT BRITAIN

H. M. S. "NELSON" AND "RODNEY"

It is reported that the *Nelson* and *Rodney* will be fitted with 14-inch cemented armor in wake of turrets, and that this is the maximum thickness of armor on these vessels. The armored range finder and director station over the conning tower will have 8 inches of cast-steel armor.

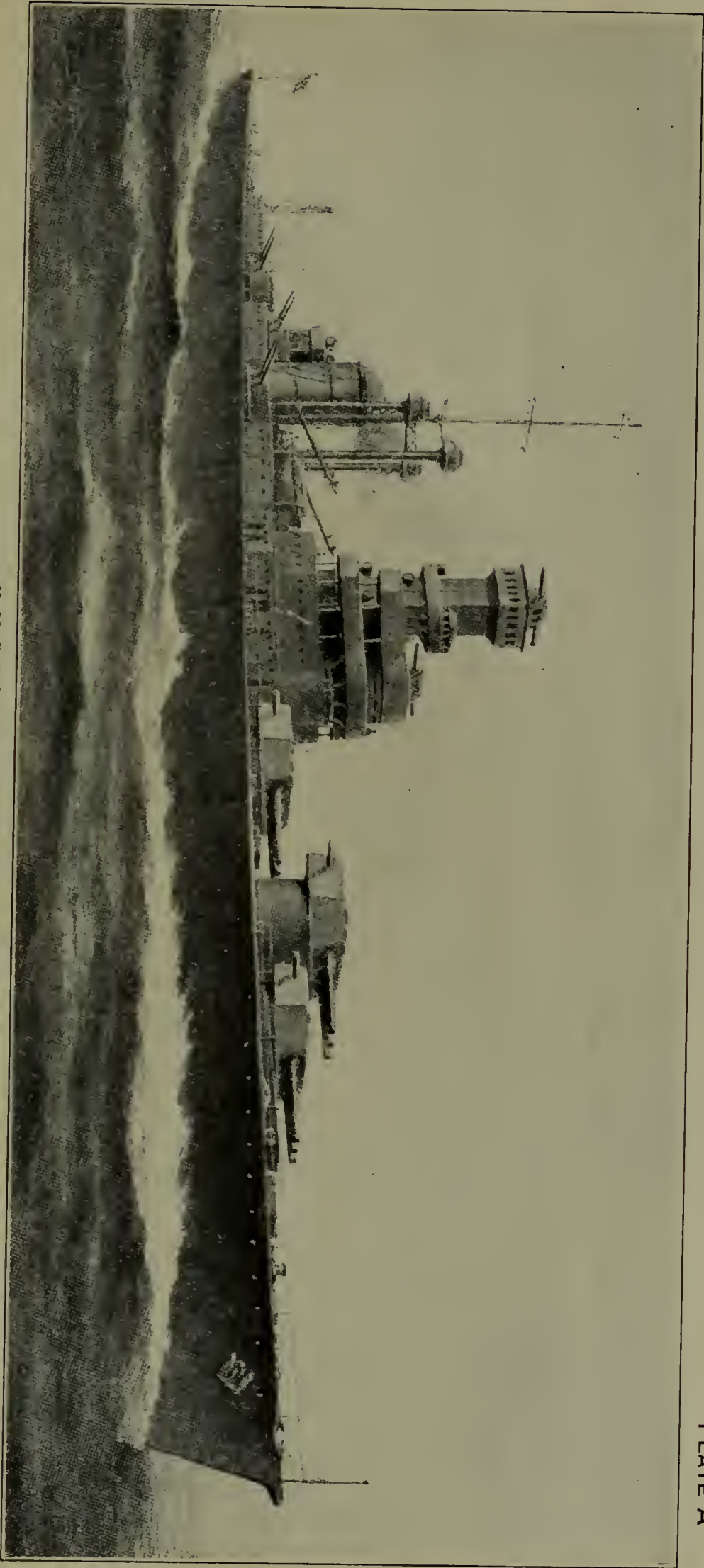
The general appearance of the ship will be somewhat as shown in Plate (A). The arrangement of the guns and of the bridge and fire-control top, as shown on Plate (A), appear to be confirmed by Plate (B), which is a photograph taken at the launching of the *Nelson*. The location of the smoke pipe, as shown on Plate (A), is, however, not confirmed, and it is probable that this smoke pipe will be between the mainmast and the bridge and rather close to the bridge.

A new type of foremast is introduced, following the mast structure successfully tried out on H. M. S. *Hermes*. This permits the mounting aloft of a long base range finder and is said to eliminate vibration.

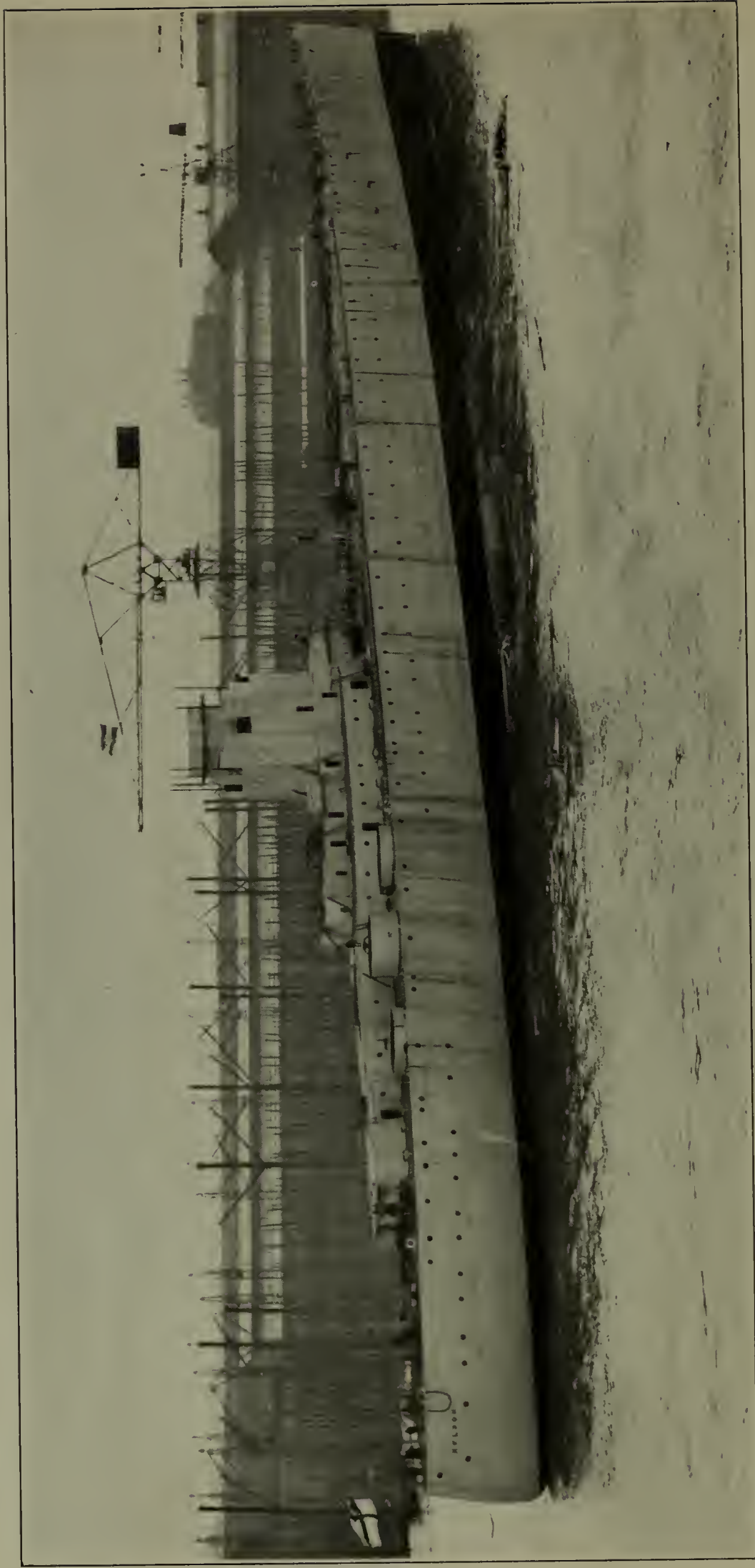
The battery will consist of nine 16-inch 50-caliber guns, twelve 6-inch 50-caliber guns, and eight 4.7-inch antiaircraft guns, the latter being mounted together in the after part of the vessel. Note that the middle 6-inch turret can shoot over forward and after turrets.

It is stated that one of the 14-inch plates for the side armor of the *Nelson* has been tested with a 12-inch gun, striking velocity of 1,750 foot-seconds (normal impact), and that the projectile just penetrated the plate, remaining unbroken. It is also stated that the 16-inch armor-piercing projectile for the *Nelson* will weigh 2,004 pounds empty and 2,246 pounds loaded and fused, and that the muzzle velocity is believed to be 2,800 foot-seconds, but it is believed the latter figure is a little high.

The *Nelson* was launched at Armstrong Whitworth's yard at Newcastle-on-Tyne on September 4. It is said that the general



H. M. S. Nelson and Rodney when completed



Launching of H. M. S. *Nelson*

trend of the conversation on that occasion stressed the unsinkable nature of this new ship and the new type of underwater protection which had been provided; also that the *Nelson* was the most heavily armored and protected ship that had ever been built.

Due to the abnormally heavy launching weight of the *Nelson* it was found necessary to have four launching ways. The launching weight was high because all of the armor is reported to be already built into the ship. The launching was not without difficulty, and the ship failed to start until 10 minutes after release. As she passed down the ways the grease caught fire. Due to the narrow river it was necessary to stop the ship within slightly more than one ship's length. This was done by means of chains which are indicated on Plate (B).

Naval estimates list the mean draft of the *Nelson* and *Rodney* at standard displacement of 35,000 tons as 30 feet. It will be seen in Plate (B) that the ship is light forward, presumably due to absence of turrets. The beam is 106 feet. It is surmised that both ships have submerged torpedo tubes forward of the usual type and location but this has not been confirmed.

It is understood that the outside skin of the ship is ordinary ship plate riveted in the ordinary way. Above the 30-foot water line there are two rows of holes in the outer skin, covered by plates secured by 12 bolts around the rim. The holes are in nearly all cases round and about 12 or 14 inches in diameter. There is one such hole every 3 or 4 feet, or presumably one for each frame space.

Sir Eustace d'Eyncourt, Admiralty Director of Naval Construction when the *Nelson* was designed, has said that the American system of underwater protection was defective in that no easy path for the gases from a torpedo explosion to pass upwards was provided. He criticized American practice, as in the *Colorado*, because he feared that the armor deck would resist the impact passage of the gases and allow them to develop a pressure tending to blow side-belt armor plates outward. In view of this known attitude of the former Director of Naval Construction and his often expressed view that the place for armor was well inside the ship and not on the outside, so that under no circumstances will the explosion pressures come behind the armor, it seems reasonable to conclude that the holes along the side of the *Nelson*, and which may be seen indistinctly in plate (B), are for the purpose of venting an explosion. Naturally the holes will be blanked off, but presumably the cover plates are not heavy and would be blown off promptly when a torpedo explodes next the side of the ship.

It is believed that the designed speed of the *Nelson* is 23 knots and the contract S. H. P. 40,000. It is not known what margin there is between the designed power of the machinery installation

and the maximum power which can be developed but it is understood to be between 10 and 20 per cent boiler power. In the case of Brown-Curtis turbines an excess of boiler power can be converted into an excess of S. H. P. over normal, but this is understood not to be the case for Parsons turbines and is contrary to the policy of the present Admiralty Engineer in Chief who has stated that he will insist on trials being run at designed S. H. P., regardless of any margin the builder might obtain by forcing the boilers.

It is estimated the *Nelson* will be completed December, 1926, and the *Rodney* April, 1927, at a total cost of about £7,000,000 each.

New ideas in new warships and more money for them

Under the above heading, the following article appeared in the Buenos Aires Herald (English daily):

Warship designs since the armistice show revolutionary changes. The new battleships, the *Nelson* and the *Rodney*—incidentally the only battleships under construction in any part of the world—are as different from the vessels that fought at Jutland as the dreadnought was from earlier vessels.

The old plan of having the armament distributed evenly between the bow and stern of the ship, and sometimes with turrets in the center, has gone. The new practice is to abandon all attempt at stern fire and to mount the guns in triple turrets carrying three guns each, instead of the 40-year-old British practice of two guns in a turret, and to carry the whole of the armament forward in two or three turrets arranged at different levels, so that all can fire ahead and on either broadside.

Thus the new British battleships will carry nine 16-inch guns in three triple turrets, all firing ahead. The only guns aft will be light antitorpedo boat artillery. The advantages of this drastic rearrangement of the main armament are principally from the constructor's point of view. It is possible by concentrating the magazines near each other to get adequate protection for a less weight in steel armor and underwater bulges. There are also advantages from a gunnery point of view. The closer the different guns are to each the more accurately can fire be concentrated.

DISADVANTAGES

The disadvantages, however, are twofold. Many naval officers consider it a mistake to carry all the main armament in one part of the ship, as it is more liable to be knocked out by one big explosion.

The other disadvantage is that in rough weather ships steaming at speed against a heavy sea are liable to have their forward guns temporarily put out of action by mountains of green water breaking over them.

The *Rodney* and *Nelson* steaming against an Atlantic gale at full speed, will find it difficult to fight any of their three triple turrets; and this objection applies even more forcibly to the new cruisers. Yet so enamored are the constructors of the revolutionary design that they have adopted the same principle for the new vessels laid down by the Labor Government and the four cruisers

to be laid down by the present Government this year, the three next year, and the remainder of the program.

These cruisers will be miniature dreadnoughts in form as well as name if they carry their armament of 8-inch guns of immense range and power in the same way as the battleships, in three triple turrets, firing over each other, so as to give an ahead concentration of nine 8-inch guns.

POWERFUL JAPANESE CRUISER

The Japanese are believed to have gone one better and to be working on the design of a light cruiser to carry four triple turrets mounting 8-inch guns; that is, six forward and six aft.

So great has been the advance in the science of naval engineering that it is possible with a displacement of only 10,000 tons—the Washington limit—to carry twelve 8-inch guns and attain a speed of 35 knots.

Moreover, these vessels will be well protected against torpedo explosions under water by "bulges." During the war bulges were steel sheels built as an afterthought outside the hulls of the vessels, and these took the shock of the explosions of a striking torpedo. But in the new vessels the bulges are built inside the hull and do not alter the symmetry and the speed of the underwater body. Compare this design to that of the *Hawkins* class, two vessels of which are still building. On a displacement of 9,750 tons they carry only seven 7.5-inch guns, with a speed of 30½ knots. These vessels are obsolescent before their completion, but each cost over two millions of money.

ANTISUBMARINE DEVICES

One reason why the construction of submarines is not being proceeded with to any great extent by the British Admiralty is that against war vessels the submarine has lost much of its potency. The real danger to surface war vessels is from improved airplanes carrying heavy bombs to explode under water near the hull and drive in the plates; also the bulges will not protect a vessel against more than three or four torpedoes, and for the cost of one of these new cruisers a great many airplanes to carry torpedoes can be built.

Another reason why the submarine has lost its potency is that it is now possible to throw out a sound wave through the water which returns an echo, the direction of which can be measnred. Thus two vessels fitted with acoustical gear can each get a sound bearing of a submerged submarine. They can then turn in her direction and steam at full speed until they nearly meet, when they drop their depth charge all around the area, and the destruction of the underwater vessel is nearly certain. The submarine's real power will be exercised against merchant ships.

The "B" type of cruiser of 8,000 tons is only a smaller type of dreadnought cruiser. These new cruisers will outclass anything else built since the war in the same way as the original dreadnought battleship outclassed all her elder sisters. So if the taxpayers of the nations concerned do not assert themselves a new competition in an immensely expensive type of war vessel has commenced.

And the more of these vessels that are built the more obsolete will become the existing fleets.—Daily Mail.

GREAT BRITAIN

MISCELLANEOUS NOTES

October, 1925

Construction of fuel-oil tanks at Trincomalee, Ceylon

[Source reliable]

There are now under construction 15 large fuel-oil storage tanks on the China Bay side of Round Point, which is in the inner harbor of Trincomalee. These tanks are being constructed by the British Admiralty in connection with the naval base at Trincomalee.

It is estimated that each tank has a capacity of about 12,700 tons. Three of these tanks have already been completed and seven have almost reached completion. The foundations for the remaining five have been laid and work on them seems to be progressing rapidly.

It is rumored that about 15 more of these tanks are to be constructed at another location near the shore of Trincomalee Harbor. This large number of tanks is doubtless being constructed in order that a large reserve supply of fuel oil may be kept for use by the British East Indies Squadron in case of emergency.

Near the tanks which are now being constructed a large concrete oil-bunkering jetty is under construction. It is stated that it will be possible for a first-class battleship to tie up alongside this jetty and to obtain through a pipe line on the jetty a supply of fuel oil.

While the British East Indies Squadron is now making Colombo its headquarters it is understood that Trincomalee is the actual base of this squadron. Trincomalee has one of the most beautiful natural harbors in the world, and its value as a base will be greatly enhanced when the railroad extension to Trincomalee will be completed. It is believed that this extension will be completed by the end of this year.

The British Admiralty now have six fuel-oil tanks with a capacity of 12,700 tons per tank at Kollonawa, which is about 5 miles from Colombo Harbor. These tanks are connected up with the pumping station at the oil-bunkering jetty in Colombo Harbor. The oil tanks of the Standard Oil Co. of New York and the Asiatic Petroleum Co. are also located in the same area as those of the British Admiralty and are also connected with the oil-bunkering jetty in Colombo Harbor by the same pipeline. The British Admiralty also have a tank about 1½ miles from Colombo Harbor, and this tank is of 1,000 ton capacity. This tank is filled from the larger tanks in Kollonawa, and it is from a pipe-line leading from this tank to the oil-bunkering jetty in Colombo Harbor that vessels of the East Indies Squadron are now receiving their fuel oil supplies.

[From the 'British press].

Proposed naval economies

In connection with the new building program various economies have been proposed by the Admiralty. These economy measures appear to be going forward vigorously, notably the closing down of Pembroke and Rosyth Dockyards, where discharges of men began this week. It is understood that these yards will gradually be brought down to a care and maintenance basis as soon as work in hand can be finished or transferred elsewhere. A great outcry is naturally the result, by the districts affected, but it is unlikely that anything will be accomplished by it.

It is rumored that next year the Admiralty may propose the closing down of the Medway yards at Sheerness and Chatham, but no such proposal is expected in the immediate future. During the present month 1,200 men are to be laid off, and the total reduction for Pembroke and Rosyth will be approximately 3,000 men. It has been estimated that the yearly saving due to closing of these yards will be £230,000.

In answer to the outcry in the press as to why Pembroke and Rosyth were selected for closing, the Admiralty has issued a statement to the general effect that with a change in size and distribution of the fleet the facilities at home dockyards are now in excess of the demand. It is very evidently the policy to build up dockyard facilities at Malta and Singapore at the expense of home dockyards. Pembroke is essentially a building yard, and as such is not needed now. In recent times it has been kept alive by repair and refit of destroyers and small craft, which work can be done more economically at Chatham without increase in the staff at that place. It is understood that Chatham is being retained because of its facilities for refit of cruisers, destroyers, and submarines and for its basin area. Sheerness is especially equipped for repairing submarines and destroyers and has the largest store depot for supplying the fleet. If Sheerness is closed great expense would be encountered in building storehouses elsewhere. At Sheerness, also, ships lie while giving leave, during which period minor repairs are undertaken.

The selection of Rosyth for closing has been criticized because it is the most modern yard. The facilities at Rosyth, however, are such that only capital ships can be dealt with, there being no provision for small craft. Rosyth was completed during the war, and had a definite strategic value only so long as the German fleet was a menace to the control of the North Sea. With the change in the strategic situation, Rosyth is now only of value for docking capital ships

with bulges which are too broad for the existing docks at Devonport and Portsmouth. With the installation of floating dock No. 4 at Devonport, which will be completed by the end of the present calendar year, any ships of the fleet can be docked there, with the exception of the *Hood*, which will have to go to Rosyth for periodic docking. At such times a party of men from Devonport will go to Rosyth temporarily for the docking operations.

The floating dock at Malta, now in place, makes it possible for any ship of the Mediterranean Fleet to be docked there.

Rosyth consists of three graving docks, two 854 feet long and one 864 feet long, an entrance dock 850 feet long, a 1,500-ton floating dock, two basins, and an oil-fuel depot. Between May, 1916, and the armistice 78 capital ships and 82 cruisers were docked at Rosyth.

The four battleships of the *Iron Duke* class, which are due for scrapping when the *Nelson* and *Rodney* are added to the fleet, may be placed in reserve in the near future in order to save the expense of their annual overhaul. It is now understood that the *Nelson* should be completed in December, 1926, and the *Rodney* in April, 1927.

British dockyards

The question has been raised as to how Devonport has been put off with a floating dock capable only of lifting up to 30,000 tons displacement when Malta has lately received one capable of raising 60,000 tons. The result is that Devonport is still unable to dry-dock the *Hood*, and in view of the decision shortly to close Rosyth, which is the only Government establishment in the United Kingdom capable of dealing with the world's biggest warship, rather a problem seems to be suggested. It must be remembered, however, that the *Nelson* and *Rodney* are destined for the Mediterranean on completion, and that our five biggest battleships of the *Queen Elizabeth* class are already maintained on that station.

Keyham probably possesses the finest basin and graving accommodation of any naval dockyard in the world, but the remarkable growth in warship dimensions of the past two decades, accentuated as it has been by the addition of bulge protection, renders the width between locks inadequate. The four dry docks at Keyham have entrance locks 95 feet wide; when they were completed the biggest warships afloat were the *King Edwards*, with a beam of 78 feet. The permanent works at Devonport are capable of adaption to the needs of the biggest ship in the world; those at Malta are not. Whilst the *Hood* exceeds the displacement of the new battleships by about 7,000 tons they have 2 feet more beam than she has. But, seeing how improbable it appears now that such large ships will

ever be repeated, the reluctance of the Admiralty to incur heavy expenditure in providing other than floating dock accommodation for them is not difficult to understand.

Completion of floating dock at Malta

The following quotation from the Daily Malta Chronicle is of interest:

The additional section to the Malta floating dock, towed by four Admiralty tugs, and escorted by the destroyer *Voyager*, arrived here from Sheerness on Saturday, August 22, the structure entering the Grand Harbor, Valletta, exactly at noon, being navigated to its position with ease and precision.

The huge floating dock which had preceded the section has, since its arrival here, been separated into two equal portions at the Malta dockyard; the additional one which has just been towed here will be fitted in between the two, thus increasing its length to nearly 1,000 feet and its lifting capacity to 60,000 tons, rendering the Malta floating dock the largest of its kind in the world.

The equipment of the Malta base with this dock will enable the Malta dockyard to cope with all the requirements of the ships of the Mediterranean fleet instead of having to be sent to the home yards 2,300 miles away. It will also make possible the new retrenchment policy upon which the Admiralty have just embarked, and finally render this first-class naval base as complete as possible.

The additional structure was built at Chatham from the design of Sir E. H. Tennyson d'Eyncourt, late Director of Naval Construction, and cost £423,733.

Salvage of ex-German warships at Scapa Flow

The first phase of the salvage operations at Scapa Flow was completed on Monday, when the *V 78*, the eighteenth of the smaller ex-German destroyers, was finally beached after a great deal of trouble. She had been hauled halfway to the surface out of a bank of sand, towed in a rope cradle like a submarine about 4 miles, sunk again in deep water, turned completely over on the sea bed, raised again and placed on the beach practically high and dry.

These operations were necessary owing to the vessel having turned turtle at the time of sinking. Keel uppermost, her bridge, funnels, and upper works were buried in about 30 feet of water on the north coast of the Island of Fara, and during the years that she lay there about 8 feet of gravel and sand silted up round her.

The floating docks were moored over the destroyer's position and divers by the use of powerful 12-inch pumps, had to blow channels through the sand in order to allow passage for the 9-inch wire hawsers under the deck of the ship. This was a formidable task, and in the process one part of the destroyer had to be sealed and pumped with compressed air in order to give a little buoyancy.

The divers were finally successful; the ship was made fast in a cradle of wire ropes and hauled up out of its bed. Tugs took charge of the dock, with its captive destroyer hanging below, and proceeded to tow it steadily through Gutter Sound which is now clear of all the wrecks which have up till recently encumbered this narrow strip of water.

In Mill Bay the destroyer was dropped once again to the bottom in about 70 feet of water in order to give sufficient depth of water to turn the vessel over, and this was done by skillful maneuvering in hauling up by one dock and paying out by the other, the friction of the ropes on the one side of the ship resulting in the complete turning over of the ship in its rope cradle to an upright position.

The whole operation was carried out within 13 days, during seven of which no work was possible owing to gales which swept the locality with hurricane force. The second phase of the salvaging operations will commence within the next few days, when the first of the seven remaining destroyers of a tonnage of 1,300 tons each will be commenced.

Exploration ship "Discovery"

The exploration vessel *Discovery* is leaving England under the command of Capt. J. R. Stenhouse, Royal Navy, for a two to three years cruise in the South Seas and Antarctic. The voyage is announced as a purely scientific expedition, with its principal object a study of whaling in the South Seas and the increase of geographical knowledge.

Gas warfare

The following quotations from two of the London papers show the first tests made by the British Chemical Warfare Service in connection with gas protection on board vessels of war:

Portland gas attack—Mimic operations against warships.—Scenes reminiscent of war days were witnessed in Portland Harbor yesterday when there was a realistic poison-gas attack by the military on naval ships at anchor.

The attackers were the royal engineers, who released poison gas from the breakwater, and, the wind being favorable, the dense volumes were carried on board the battle cruiser *Tiger*, of Jutland fame, the light cruiser *Champion*, a destroyer, and other smaller craft.

In reply to the attack the ships sent up a smoke screen and chemical gases to disperse the poison gas.

All the men, naval and military, wore gas masks. Owing to bad weather, the attack could not be finished.

Gas against warships—Smoke screen to counter poison cloud.—Parts of Weymouth Bay and Portland Harbor were obscured by dense clouds of smoke

to-day during poison-gas and smoke-screen experiments carried out by the battle cruiser *Tiger*, of Jutland fame, in conjunction with the light cruiser *Champion*, the destroyer *Rob Roy*, and a detachment of the royal engineers detailed for special duty.

It is stated that interesting experiments on board the *Tiger* have been in progress during the past few days while the ships lay at anchor off the north-eastern end of the breakwater. To-day the military attacked with a poison-gas cloud, and the vessels retaliated by sending a huge smoke screen in an endeavor to nullify the effect of the gas.

The authorities were obliged to wait until the wind was in a favorable direction before the attack could be proceeded with, and I understand that all ratings taking part wore smoke helmets.

The controller for chemical warfare research has stated that the experiments had for their object—

(a) To find out to what extent gas would penetrate the various compartments of a ship through its ventilation system when the same had been closed off as far as practicable, as if the ship were actually entering a toxic-gas cloud.

(b) To determine how long it would take to clear the ship of gas, using its ventilating system.

Although the experiment was intended to determine the effects of a gas cloud, actually no poison gas or even tear gas was used. It is understood the experiment was carried out about as follows:

A relatively large number of Admiralty smoke floats were set up at intervals on the breakwater and these smoke floats were lighted and a very heavy cloud of smoke was carried over to the ships mentioned in the above newspaper clippings, which were lying anchored about 400 yards from the breakwater. Arrangements were made to determine the concentration of smoke in the various compartments of the ships. These ships had only their normal equipment and no special antigas devices in their ventilating systems.

It will probably be a month or more before anything definite can be given out as a result of the reports obtained.

Target practice at Malta using wireless-controlled target ship Agamemnon

Almost the whole of the fleet has returned to Malta now, and the harbours are nearly full. Yesterday the big ships and cruisers were firing at the wireless-controlled target ship *Agamemnon*. Without a man on board the *Agamemnon* can maneuver, change course, increase or decrease speed—do everything, in fact, except hit back when attacked. Very likely she soon will do that, too. All her movements are controlled by wireless from the destroyer *Shikari*. Yesterday was rainy and the visibility was bad, but the big ships

opened at very long range, fire being directed by spotting airplanes. When the cruisers closed the *Agamemnon* turned to windward and put up a smoke screen, all by wireless, and hid herself completely from the ships, but she could not escape the eyes of the planes above, and salvo after salvo struck her, but the shells, having no bursting charge, do less damage than would be the case in real war. Several army and royal air force officers in the destroyers were interested observers.

New lighting device at Croydon airdrome

The installation of a system to enable "air expresses" to land safely in fogs has just been started at Croydon, the London air station. In parallel lines across the airdrome trenches are being dug, and in these "neon" light tubes are to be arranged. This form of light has a brilliant reddish hue which penetrates fog. Above the lights and flush with the ground there are to be thick plate-glass covers, so that airplanes can pass over them without damaging the glowing tubes beneath. Between the light tubes there is to be a "leader cable," which will affect an instrument in any airplane flying immediately above, thus enabling the pilot to determine his position in relation to the cable, and also his height above it. Several miles of this cable are also to encircle the airdrome. After being guided by directional wireless to the airdrome the airman flying through fog will pick up the leader cable and follow it round and round, gradually reducing his altitude until he catches sight of the lines of neon lights and is able to land.

Imperial wireless chain

The Postmaster General announces that a site at Winthorpe, near Skegness, for the receiving station for the beam services with Australia and India was placed by him at the disposal of the contractors on August 8. A site near Grimsby for the transmitting station was handed to the contractors a few weeks ago; and the stations are due, under the contract, to be completed by May 8 next year.

According to the Bombay Evening News the Indian Government has ordered the acquisition of land at Poona and at Dhond (45 miles southeast of Poona), with a view to the erection of two beam stations. A number of engineers of the Marconi Co. have already arrived to superintend the construction of the stations.

Duplication of Pacific cable

During 1923 the Pacific cable between Fiji and Auckland was duplicated; a new cable connecting Southport, the Queensland terminus, with Sidney was also laid. The total contract price for this work was £311,655. Tenders have been accepted by the Pacific Cable Board for the duplication of the two northern sections, viz, Fiji-Fanning Island and Fanning Island-Vancouver. The cost will approximate £2,300,000. The partner governments are not to be called upon to meet any portion of the cost of duplicating the cable, the whole amount being paid from the reserve and renewal funds.

Cruiser "Diomedé" to New Zealand

H. M. S. *Diomedé* has been selected as the second cruiser for the New Zealand division; it is expected that she will commission in October and reach the Dominion by the end of 1925. The addition of this vessel is responsible for the greater portion of the increase in the estimates for naval defenses.

NOTE.—The estimates for the year 1925-26 (naval defence, New Zealand) show an increase of £160,859, and of this amount £160,000 is due to the addition of H. M. S. *Diomedé* to the New Zealand division.

Singapore

[From the German press]

The man who first called Singapore "the pearl of the equator" was certainly gifted with prophetic insight, although at the time his words were probably looked upon as a bad joke. The distinguishing qualities of this young colonial town are decidedly more of a commercial than of an aesthetic nature, and one could hardly imagine a less pleasant place to live in than this stifling, flat, and unhealthy tract of land were it not for the tin and rubber trade which brings in a sure profit of 100 per cent. The main profits of the rubber export (three-fourths of a billion marks a year) and of the tin exploitation (300,000,000 marks a year) are pocketed by the busy Chinese merchants, but there is enough left over for the 4,000 Europeans to help to gild this equatorial sweating bath. Besides, an additional and very profitable source of income is provided by the Dutch Indian trade, especially that of Sumatra tobacco—carried on over Singapore. However, these advantages hardly seem to justify the denomination of "pearl," and the moral peculiarities

of Singapore do so even less; the thieves of Singapore are renowned in all the East, and there is a proverb which says: "When you draw on your right stocking in Singapore, hide your left one in your safe."

Nevertheless in a sense the pearl comparison is justified. Probably no other colonial town has cost its possessor as much money as England has had to pay for Singapore. Sir Stamford Raffles, who was the first to recognize the importance of the Malakka route, would probably shudder under his marble monument if he were to reckon up the cost of his idea. The sums appointed in the budget for the projected works in the town, and which called forth Macdonald's remonstrances in the House of Commons, are far from sufficient. The harbor of Singapore is to be extended, it being at present so small that a medium-sized commercial ship can not turn in it; its obsolete artillery defense is to be renewed; provision is to be made for the establishment of an air squadron; and, lastly, an intermediate base for the British Navy is to be built, although no mention of this latter point was made by the usually very loquacious opposition of the House of Commons. The distance from Suez to Singapore has a surplus of 5,000 sea miles, which necessitates the establishment of an intermediate base. This is the reason why the Ceylon Harbor of Trincomalee is being rebuilt into a naval base, as well as Singapore. Trincomalee has a large and rocky bay, offering security from storms but completely unequipped, and its adaptation to the intended purpose will require the construction of a 160-kilometer railway line uniting it with the Colombo line. It is hardly to be supposed that the British taxpayers will have much reason to rejoice during the next few years unless they happen to be armament business men—more especially so as the construction of the Singapore and Trincomalee Harbors must necessarily be accompanied by a commensurate development of the British Navy. As soon as the naval bases are finished they must be adequately manned, and no one can imagine that the Admiralty would consent to weaken the British navies either in the Atlantic or in the Mediterranean for this purpose.

There seems to be no doubt that the naval base of Singapore is the backbone of British expansion in the Pacific and of an active "competition" in China. Probably it also contains the germ of a future war between the white and yellow races.

There does not seem to be any other explanation for the costly military equipment of this equatorial port, which owes its present importance not to the force of arms but to the natural development of free trade. Neither is it threatened by a single neighbor. The "protected" caliphates of the Malay States are perfectly happy as long as no one pays attention to them, and it would be absurd

to suppose that any one of the native sultans would dream of attacking the British colony of Straits Settlement. Siam is a peaceful and harmless neighbor, offering a living example of a native State that manages its own affairs to its own perfect satisfaction without colonial tutelage. This may possibly be disturbing from the English standpoint, but the Siamese are peaceable growers of rice who do not care at all about making political proselytes. The unprofitable French possessions in Indo-China are hardly likely to inspire Great Britain with aggressive desires, and the vast bulk of Dutch-Indian commerce is already under British control, as we had occasion to learn by bitter experience during the war. It seems, therefore, logically justifiable to infer that the only reason for the armament of Singapore is the yellow race.

Foremost stands Australia's objection to Japanese immigration. The situation is such that the limited expanse of the Japanese islands is overpopulated to suffocation, whereas Australia—which covers an area equal to that of Europe minus Russia and possesses natural resources at least equal to those of Europe plus Russia—has a population of 5,000,000. Japan is obliged to import everything, including rice, whereas the Australian farmer reckons one morgen of pastureland for each head of sheep. Such extreme contrasts would be untenable even under conditions of friendly dealings between the two Governments. It is true that after the war Australia made an apparent step toward conciliation by allowing Japanese emigrants to settle in certain portions of its northern territory. Unfortunately, however, these tracts of country are nothing but desert land absolutely unsuited not only for human habitation but even for that of a kangaroo.

The second main reason for the armament of Singapore is Great Britain's apprehension that in the event of a division of China she should obtain a lesser share than America, Japan, and Soviet Russia. In treating of the commercial successes of these three countries in China, the English colonial press, which always faithfully reflects the imperialistic standpoint of the Government, assumes a tone of cold indifference toward the former, of bitterness toward the second, and of unconcealed alarm toward the latter. Reuter cables news of all the antiforeign Chinese demonstrations, and although four Chinese were shot in the recent students' disorders at Shanghai, whereas not a single European was wounded, the semi-official British telegraph agency winds up its detailed description with the remark that surely something should be done for the protection of British interests in China.

I do not know how far the iron setting of the pearl of the equator has progressed. Both military and police authorities are extremely careful in keeping every civilian at a respectful distance from the

critical zone. It is not even easy to land in the town; every foreigner who attempts to do so is subject to a detailed interrogatory in Penang, to a second one in the port of Singapore and to a third one at the police office in the town. I never had so much unpleasantness about my camera anywhere else, although I explained that the lock was broken. If one happens to want to carry a weapon, which is undoubtedly more necessary at Singapore than anywhere else in the East, one has to spend many hours several days running in the police station. The Government has become extraordinarily careful, almost as careful as one is in expectation of war.

Is the Pearl of the Equator fated to cost blood as well as gold—as has been the case with most famous jewels?

ITALY

DATA ON ROYAL AIR FORCE

The following data on the Royal Italian Air Service is thought to be reliable and may be considered correct as of September 30, 1925:

- Number and distribution of squadrons.
- Number of aircraft—In commission and reserve.
- Air personnel strength—Active status and reserve.
- Plans for future expansion.
- Budget.
- Subsidies granted to civilian air lines.

(a) The unit of organization is a squadron.

The number of aircraft (normally) per squadron, of the various classes of machines, is as follows:

| | VF | VO | VT |
|-----------------|----|----|----|
| Landplanes----- | 12 | 9 | 6 |
| Seaplanes----- | 9 | 9 | 9 |

NOTE.—The Italians have no special classes for scouting, patrol, or fleet planes, the functions of these classes being performed by the VO's or VT's. The VT class includes torpedo planes, day bombers, and night bombers.

(b) Present strength in squadrons:

Total number of organized service squadrons, 74.

(c) Distribution of squadrons:

Stationed at home, 67.

Stationed abroad, 7.

Assigned to the Army, 18 (included in the 67 at home).

Assigned to the Navy, 0.

NOTE.—It is the intention eventually to assign 35 squadrons to the navy. See subparagraph (k) below.

(d) Number of aircraft (exclusive of school and training aircraft) actually in commission in active squadrons:

| | |
|----------------------------|-----|
| Independent air fleet..... | 386 |
| Assigned to the Army..... | 162 |
| Colonial air force..... | 57 |
| Total | 605 |

(e) Number of aircraft actually in commission, as shown in (d), by classes:

| | VF | VO | VT | Miscellaneous |
|----------------------------|-----|-----|-----|---------------|
| Independent air fleet..... | 214 | 43 | 127 | 2 |
| Assigned to the Army..... | | 162 | | |
| Colonial air force..... | | 38 | 19 | |
| Total..... | 214 | 243 | 146 | 2 |

(f) Number of airplanes in reserve, by classes and service:

| | VF | VO | VT | Miscellaneous |
|----------------------------|----|-----|-----|---------------|
| Independent air fleet..... | 97 | 40 | 125 | |
| Assigned to the Army..... | | 205 | | |
| Colonial air force..... | | | | |
| Total..... | 97 | 245 | 125 | |

Total airplanes in reserve, 467.

(g) Airplane strength (exclusive of school planes):

| | |
|--------------------|-------|
| In commission..... | 605 |
| In reserve..... | 467 |
| Total..... | 1,072 |

NOTE.—It will be noted that a total of 1,555 machines were previously given as reported December 31, 1924. The reason for the decided decrease is that a large number of machines have been scrapped, and the deliveries of new ones has not been as rapid as had been expected. In addition to the above noted total there are about 50 experimental odds and ends.

(h) School and training planes:

| | |
|------------------|----|
| Landplanes | 5 |
| Seaplanes..... | 5 |
| Total..... | 10 |

NOTE.—The elementary training of pilots for qualification as "airplane pilot" is carried on in civilian schools under contract with the air service. These schools supply their own equipment and instructors and are paid by the air service according to agreement. There are seven such schools, with a total number of serviceable training planes of approximately 150. Advanced training, for qualification as "military pilot," is carried on in the regular service squadrons except for one landplane and one seaplane training squadron for pursuit pilots.

(i) Lighter-than-air craft:

Dirigibles in service

| | |
|-------------------------|---|
| Rigid airship..... | 1 |
| Semirigid airships..... | 6 |
| Total..... | 7 |

Dirigibles under construction

| | |
|-------------------------|---|
| Semirigid airships..... | 4 |
|-------------------------|---|

Balloons

At present all balloons belong to the army. The number in service or fit for service is not known.

NOTE.—Steps have been taken to sell two semirigid airships.

(j) Air service personnel:

Active status

| Officers | | Enlisted men | |
|---|-----|------------------------------|--------|
| Line officers..... | 510 | | |
| Staff officers..... | 257 | | |
| Total officer strength..... | 767 | Total enlisted men..... | 16,716 |
| Officer pilots..... | 407 | Enlisted pilots..... | 413 |
| Officer observers..... | 103 | Enlisted student pilots..... | 166 |
| Student officers (at Aeronautical Academy)..... | 56 | Airship steersmen..... | 9 |

NOTE.—There are approximately 200 army officer observers detailed to duty with the air service from time to time. These are not included in the air service officer strength (767) given above. There are no naval officers so detailed at the present time.

Civilian force employed by the air service at the present time, 330.

Reserves

| Officers | | Enlisted men reserve | |
|-------------------------------------|-----|-----------------------------|-----------|
| Line officers..... | 432 | Pilots (approximately)..... | 300 |
| Staff officers..... | 152 | Men..... | Not known |
| Total reserve officer strength..... | 584 | | |
| Officer pilots..... | 416 | | |
| Officer observers..... | 16 | | |

NOTE.—The available enlisted reserve for the air service consists principally of the men trained in the air service during their term of compulsory military service and who have been discharged upon the completion of such service. The matter of keeping track of these reserves is now a function of the authorities of the recently inaugurated air zones, and it is expected that more accurate records will be kept in the future.

(k) Plans for future expansion:

The present program is to expand the air service as rapidly as possible to the strength shown below. The Italian authorities estimate that this expansion will require about five years (until 1930), due to the limitation of funds, the time required for recruiting and training personnel, and the procurement of aircraft and material.

Proposed air strength

| | Squadrons |
|---|-----------------------|
| Independent air fleet----- | 78 |
| Assigned to the army----- | 57 |
| Assigned to the navy----- | 35 (also 6 airships). |
| Colonial air force----- | 12 |
| Total----- | 182 (and 6 airships). |
| New squadrons, 108 (there being 74 at present). | |

NOTE.—The apportionment of the proposed new squadrons by classes of aircraft (VF, VO, VT, etc.) has not been decided; as, it is said, that depends upon the types that may be developed and conditions that may arise.

Of the 35 squadrons to be assigned to the navy, 6 will be based on board the ships of the fleet, and the other 29 will be based at the coastal bases. As far as possible the pilots and observers of the squadrons based on board ships will be naval officers with flying brevets.

Personnel required for the air service of proposed strength

| Officers | | Enlisted men | |
|--|-------|-------------------------|--------|
| General officers----- | 26 | Total enlisted men----- | 29,226 |
| Colonels----- | 49 | | |
| Lieutenant colonels----- | 91 | | |
| Majors----- | 199 | | |
| Captains----- | 595 | | |
| First and second lieutenants--- | 1,400 | | |
| Total officers (including those detailed from the army and navy----- | 2,360 | | |

Civilian employees (classified), 957.

(m) Aircraft production:

Aircraft built for the air service from March, 1923 (the time the air service was separated from the army and navy), to September 30, 1925:

| | VF | VO | VT | Miscellaneous |
|-----------------|-----|-----|-----|---------------|
| Landplanes----- | 157 | 402 | 129 | 28 |
| Seaplanes----- | 98 | 97 | 86 | 40 |
| Total----- | 255 | 499 | 215 | 68 |

Grand total, 1,037.

(Average monthly production for 31 months, 33.)

Aircraft to be built during the next year :

| | VF | VO | VT | Miscella neous |
|-----------------|-----|----|----|-------------------|
| Landplanes..... | 169 | 24 | 40 | ----- |
| Seaplanes..... | 24 | 44 | 48 | ----- |
| Total..... | 193 | 68 | 88 | ----- |

Grand total, 349.

(n) Budget:

The organization of the Italian Air Service is such that the amounts to be spent for the aviation units assigned to the army and to the navy can not be segregated from the general expenditures.

The total aviation budget, as actually approved to date, is 449,-000,000 lire.

The following increases have been proposed by the Minister of Aviation, and approved by the Minister of Finance (and is practically certain of final approval) :

| | |
|---|----------------------|
| For additional expenses required in putting the recent reorgani- zation in effect..... | Lire 90, 000, 000 |
| For civil aviation (proposed new air lines)..... | 10, 000, 000 |
| Total..... | 549, 000, 000 |

The approved budget for the fiscal year ending June 30, 1926, has an item of 227,500,000 lire for purchase and maintenance of aircraft, engines, spare parts, instruments, experimental, photographic, etc.

The subdivision of this item is as follows (subject to modification by the supreme general staff) :

| | |
|---|-----------------------|
| New aircraft and modifications to aircraft and engines..... | Lire 170, 000, 000 |
| Purchase of spare parts..... | 13, 000, 000 |
| Instruments..... | 5, 000, 000 |
| Experimental and research..... | 19, 500, 000 |
| Photographic and radio..... | 20, 000, 000 |
| Total | 227, 500, 000 |

The distribution of the extra 90,000,000 lire has not yet been decided.

NOTE.—The Italian budget is more elastic than our own, and increases may be made from time to time during the year. It is believed that the total of 549,000,000 lire for the current year may be increased before the end of the year.

(o) *Subsidies granted in various forms to civil aviation:*

In the contract between the Italian Government and the Aero-Espresso Italiana Co. (Italy-Greece-Turkey air line) the following provisions were incorporated:

(1) For a period of 10 years the Government will grant a subsidy per kilometer of actual flying as follows:

First 3 years, 20 lire per kilometer.

Last 3 years, 12.60 lire per kilometer.

Average for the 10 years, 16.80 lire per kilometer.

This subsidy to be paid up to a maximum of 315,000 kilometers per annum. For each kilometer above that maximum and under 45,000 the subsidy would be 25 per cent less.

(2) The Government will pay a lump sum of 1,000,000 lire for the transportation of a guaranteed minimum of 10,000 kilos of mail. All above the 10,000 kilos will be paid for in addition to the 1,000,000 lire.

(3) The Government will pay 800,000 lire per annum for maintaining the aircraft in efficient condition, ready for service whenever the Government may direct.

(4) The Government cedes, free of charge, the necessary land, buildings, and material for the Brindisi terminal of the air line.

(5) Gasoline and other material imported by the company for use in operating the air line are exempt from import duty and taxes.

(6) All earnings of the company for the 10-year period are exempt from income tax.

NOTE.—Further details of this contract are on file. The amount of the subsidy granted is calculated to cover 60 per cent of the total cost of maintaining and operating the line.

A contract was recently signed with the Piaggio Co. for an air line Rome-Genoa-Barcelona. The text of the contract is not known, but the subsidy to be granted is:

First 3 years, 14 lire per kilometer.

Next 4 years, 13 lire per kilometer.

Last 3 years, 12 lire per kilometer.

No Italian air lines are actually in operation as yet.

ITALY

MISCELLANEOUS NOTES

October, 1925

Royal decree establishes an air ministry

The following is a translation of the royal decree establishing an air ministry, also the Premier's communication to the King in relation thereto:

PREMIER'S COMMUNICATION

SIRE: The expediency of constituting an Air Ministry in lieu of the Commissariat of Aviation was recognized several months ago, when, amongst various other military reforms, the reorganization of the air service was decided.

The intense work of reorganization conducted, the gradual constitution of the personnel rosters, the considerable development and the high degree of efficiency attained in the different services, and above all, the ever-increasing importance of aviation, fully justified adopting such a measure.

In its present constitution the Commissariat for Aviation is substantially already a ministry without actually bearing the name. And yet, from this formal difference, which is not justified by considerations of economy, accrue certain disadvantages from the dual viewpoint of the budget and of the relations with the other military organizations. These drawbacks, which are not only of a material order, require to be eliminated and the three arms—land, sea, air—organized on analogous bases.

The constitution of an air ministry does not imply any extra expenditure nor increase of personnel; on the contrary a certain economy may be realized.

With the institution of the general directing office of military personnel and schools, and of the general directing office of civil personnel and general affairs, and other minor modifications, the organization of the offices will closely resemble that of the other ministries for military affairs, and certain incongruities of the present distribution of the offices and services—heritage of the transitory period of the first constitution of the independent air service—eliminated.

ROYAL DECREE NO. 1513, AUGUST 30, 1922

ARTICLE 1. An Air Ministry is hereby constituted in lieu of the Commissariat of Aviation.

The minister appointed thereto, taking the grade which comes immediately after the Minister of the Marine, is assisted by an undersecretary of state.

ART. 2. The Air Ministry includes:

- (a) The office of the minister.
- (b) The office of the undersecretary of state for aviation.
- (c) The office of laws and decrees, attached to that of the minister, managed by a chief of civil section.
- (d) The general directing office of military personnel and schools, managed by a general of air division or brigade.
- (e) The general directing office of civil personnel and general affairs, managed by a civilian general director.
- (f) The general directing office of aeronautical engineering, managed by a chief general or by the general of aeronautical engineering.
- (g) The inspectorate of military commissariat (pay corps), managed by the general of military commissariat.
- (h) The sanitary office, managed by a superior medical officer of the army or navy.
- (i) The office of civil aviation and aerial traffic, managed by a chief of civil division.

ART. 3. The distribution of the general directing offices, and offices as per preceding article, and pertinent duties, are determined by decree of the air minister.

ART. 4. The Air Minister designates the officer or civilian official to assist or substitute in the event of absence the chief of any general directing office or office contemplated under article 2 above.

ART. 5. The existing rosters of civilian personnel relating to the organization of the air service are united in that the personnel will provide in future for the services of the ministry proper and of establishments pertaining thereto. A decree will subsequently establish the strength of the personnel for the central and subordinate offices.

TEMPORARY AND FINAL PROVISIONS

Up to the year 1930 the minister may gradually fill the vacancies in the rosters of the civilian personnel by provisions in derogation of all the ordinary rules governing appointment and promotion of civilian personnel, under conditions he will deem expedient to establish, both by promotions from the lower grade and independently of the minimum time period during which the particular grade was held, and by appointing candidates who satisfy special requisites, provided they form part of the regular personnel (officials and officers) or of the temporary personnel of the other State administrations, preference being given to the military ones.

Appointments of civilian officials belonging to other State administrations are subject to the assent of the administrations concerned.

By royal decree, upon recommendation of the Finance Minister, an estimate of the expenditure of the Air Ministry for fiscal year 1925-26 will be made in accordance with the appropriations inscribed for the aeronautical services already published for 1925-26.

By a decree of the Finance Minister the unexpended sums for fiscal year 1924-25 will be carried over to the new estimate of fiscal year 1925-26.

Flight of "S-16 Ter" from Italy to Australia

The following is a translation of a report from Commander De Pinedo on his flight from Italy to Australia:

Report on the behavior of the flying boat *S-16 Ter* during the flight Sesto Calende-Melbourne, between 20 April, 1925, and 9 June, 1925.

GENERAL REMARKS ON THE FLYING BOAT •

The modifications to the engine mounting carried out by agreement between the pilot and the firm, S. I. A. I., have answered their purpose and not given rise to any inconvenience. The motor, which was installed without any cowl-ing, functioned perfectly; and during the voyage the only changes necessary were:

One valve at Rangoon.

Two springs at Alexandria.

Two springs at Rangoon.

Two springs at Surabaya.

One spring at Bumbury.

Bad atmospheric conditions were encountered along the route, especially in India and Siam where the heat exceeded an average of 40° C. (105° F.). Between Puket and Akyab torrential and incessant rain was met. But in spite of this the machine arrived in perfect condition at Melbourne and required only a coat of paint on the hull.

None of the spare parts at Melbourne was required; but two wing struts were changed as a measure of precaution.

During the voyage the only changes made were to the two wing tip floats, one of which was broken at Chahbar in trying to get off in too rough water. This was repaired on the spot with the means available, but caused four days' delay owing to the absolute want of facilities.

Flight tests at Melbourne after the overhaul showed the machine to be in perfect condition.

The oil tank gave trouble several times during the voyage owing to fracture of soldered joints. This caused several days' delay.

From Bombay to Cocanada a strong east wind was met instead of the west wind normal to the monsoon season. This caused a landing at Rajamahandri, at the mouth of the Godavari, for refueling.

Between Akyab and Puket the machine was often in real difficulties, whether in flight or at moorings, on account of the bad weather and the torrential rains caused by the commencement of the monsoons and a cyclone that formed at that time in the Bay of Bengal.

From Singapore onward the conditions were tolerable, except from Perth to Albany and Adelaide to Melbourne, where the machine had to face and overcome conditions even worse than those already described.

The spare parts arrived in time.

The fuel and lubricant supplied to me was everywhere of the best quality.

GENERAL REMARKS ON THE MOTOR

The motor ran perfectly during the whole voyage of 23,000 kilometers. The actual flying time was 153 hours, to which must be added 6 hours at Sesto Calende before the start. There were no incidents whatever.

From Bagdad to Singapore the mean shade temperature exceeded 40° C. (105° F.). This several times caused excessive heating during taking off.

On account of the difficulty of getting compressed air, and of the imperfect pressure-holding qualities of the compressed-air reservoir, the compressed-air starter was abandoned and thereafter the motor was always started by swinging the propeller by hand to obtain compression. In the last stages of the voyage the compression of some of the cylinders when cold became somewhat defective. The central row of cylinders maintained pressure cold better than the others.

Toward the end the oil consumption increased markedly on account of leaks from the bearings of the cam shafts.

Attachés assigned to foreign countries

Referring to page 62, October bulletin, a decree of the commissariat of aviation, dated July 8, 1925, provides that aeronautical attachés should be assigned to the following capitals: Berlin, Buenos Aires, London, Madrid, Moscow, Paris, Washington.

Italian gunboat's cruise on the Danube and the Black Sea

On September 9 the Italian gunboat *Del Greco* returned to Brindisi after a long cruise on the Danube and the Black Sea, during

which it passed through countries where the political situation, especially as regards relations with Italy, is especially delicate. The behavior of the men, however, was irreproachable; no unpleasant incidents took place, and they were cordially received everywhere, especially at Budapest. The ship is stated to be in perfect condition after a cruise of 4,000 miles. It was commanded by Lieutenant Commander Valerio, and will now be placed in reduced complement.

Russian ships in Italy

The Russian torpedo boats *Petrowski* and *Nosamojnik* left Odessa on September 16 for Italy to return the visit recently made by the Italian torpedo boats. They arrived in Naples on the 26th at 10 a. m., where they saluted in the usual manner and were answered by the Italian flagship. The Russian sailors will remain in Naples on the 27th and 28th. A special program of banquets, entertainments, etc., has been prepared for them by the authorities.

Salvage of light cruiser "Bari"

The Ministry of Marine has published the following official statement on the floating of the light cruiser *Bari* (ex-Russian *Muraviev Amurski*, ex-German *Pillau*):

On August 24, at 9.30 p. m., the light cruiser *Bari* grounded near Punta Molinazzo, on the north coast of Sicily, at the eastern end of the Bay of Castellamare. The condition of the ship was not serious; to float her it was necessary to remove nearly 1,000 tons, and this could easily be done by removing the fuel and movable fittings.

On the evening of August 25, when the last weights were being carried away and an attempt at floating the ship was soon to be made, the weather, which till then had been uncertain, suddenly changed for the worse. A strong storm broke and the surf beat on the sides of the ship and rose as high as the funnels. The mooring ropes broke and the ship was driven on the rocks near the shore.

The situation became serious; nearly 3,000 tons of water entered the ship, flooding the firerooms and extinguishing the fires.

Rear Admiral Foschini, maritime commander of Sicily, undertook the management of the salvage operations, with the light cruiser *Taranto* under his command. All the aids to salvage that had been sent from Taranto, Spezia, and Turin were concentrated at once on the spot, which was on a coast exposed from practically all sides. Cylinders to effect the raising of the ship were sent from Taranto. The salvage operations were carried out in the following order:

1. The ship was moored and new pumps with their own boilers were fitted on the ship.
2. All detachable material was removed from the ship.

3. Twelve pairs of brackets, on which four cylinders and four pontoons for raising the ship were to be fitted, were built. It was expected that a 2,000-ton lift would be obtained by these means.

4. Mines were used to break the rocks that held the keel. The mine-laying divers of the Royal Navy were employed for this work.

5. Leaks were stopped.

6. The water was pumped out and the fires lit.

At this point a final effort was to be made, when a new storm broke out and the ship was again in serious danger. But, thanks to the solid moorings, she withstood the storm.

At last, good weather having returned, several attempts at floating were made during high tide by the *Taranto*. The fourth attempt was successful, and the *Bari* at 1 a. m. of September 21 was again afloat and, escorted by the *Dante*, was towed by the *Taranto* back to Palermo, where she arrived at 11.30 a. m.

Mine layer launched

On September 29, 1925, the mine layer *Dardanelli* was launched at Trieste in the presence of Signor Belluzzo, Minister of National Economy. The ship was built by the Cantiere Navale Triestino, at Monfalcone.

Ships stricken from the list

The royal decree of July 24, 1925, No. 1505, announces that the mine-sweeper *Portosega* is temporarily stricken from the list, having been ceded to the civil construction corps of Trieste from May 23, 1925, to May 23, 1926.

In accordance with royal decree No. 1444, of July 16, 1925, the auxiliary ship *Trinacria* has been stricken from the list.

New invention for transmitting designs by telegraph

The Messaggero announces that the electrical engineer Ugo Ciamberlini, now serving in the Italian Air Force as a specialist in electric apparatuses, has invented a device for transmitting designs, sketches, etc., by an ordinary telegraph plant. No details are available.

JAPAN

NAVAL REPLACEMENT PROGRAM

The Japanese Navy Department will make no official statement concerning the new naval replacement program except that it is being considered and that the details of the program have not been

decided. However, from unofficial sources it seems quite well established that the Japanese Navy Department has decided on the details of the new program and is now endeavoring to obtain its approval by the Finance Department.

It is believed that the new program will call for an appropriation of about \$320,000,000, to be expended during the five fiscal years beginning 1926-27 and will consist of the following ships:

Four 10,000-ton light cruisers.

Twenty 1,500-ton destroyers.

Ten 1,500-ton submarines.

Three gunboats.

Two special-service ships.

One airplane tender (conversion of *Noto*, tanker, 15,400 tons).

The principal reasons advanced for the necessity of the new program are as follows:

(a) To replace ships which have reached the age limit.

(b) To maintain the naval budget at a constant level.

(c) To counteract the United States 5-3 advantage in capital ships by acquiring an equality ratio in auxiliary forces.

(d) To prevent the discharge of numerous workmen employed by Government and private shipbuilding yards.

(e) In the event of another arms conference to place Japan in a favorable position as regards total tonnage of auxiliary vessels built, building, and authorized.

The fundamental reason why this replacement program will be passed in one form or another lies in the present Japanese expansion policy. This policy may be bluntly expressed as follows: "Development of the resources of China and the means of access to them, for the benefit of Japan." Japan feels that the success of this policy is necessary to the life of the nation. Success in this policy means the rise of Japan as a world power in wealth and prosperity. Failure in this policy means that Japan has reached her pinnacle and the future will see the fall of Japan as a world power.

Japan's naval policy in support of the above-mentioned policy seems quite clear: "To build up a navy which will be supreme in Japanese home waters."

Being restricted to a 5-3 ratio in capital ships, Japan desires to build up her auxiliary and air forces to such strength that no foreign navy can successfully wage offensive warfare against her. In support of her naval policy it is believed that Japan plans to build up her air and auxiliary forces to an equality ratio with the United States, and that in the event of a second arms conference she will demand this equality ratio, except as regards airplane carriers.

From a study of the attached tables the following facts present themselves, assuming that Japan's naval replacement plan becomes a reality:

(a) In 1931, excluding third-class destroyers, Japan will have 92 destroyers of 125,255 tons, all less than 12 years old, as compared to 105 United States destroyers of about 136,500 tons.

(b) In 1931 Japan will have 78 submarines of 82,761 tons, all less than 12 years old, as compared to 57 United States submarines of about 59,890 tons.

(c) In 1931 Japan will have 29 cruisers of 196,205 tons, less than 17 years old, as compared with 12 United States cruisers of 95,000 tons.

(d) In Table 3 we compare the numbers of the three types of auxiliary vessels that the United States and Japan Navies will possess each year from 1925 to 1934.

(e) Assuming that the Japanese replacement program is disapproved in its entirety, auxiliary ships possessed are shown by Table 4.

(f) The next to last column, Table 1, shows the uniformity of the Japanese building program. The years 1926 and 1927, when this column shows the smallest numbers of ships completed, are the years in which the airplane carriers are completed, thus maintaining the budget level. The present and contemplated building programs will be completed by 1931, thus leaving the years 1932-36 free save for the expenditures necessitated by the building of the three capital ships provided for by the Washington Arms Conference. The smallness of the budget during these four years will permit Japan to appropriate heavily for her air force and thus maintain the budget level.

(g) This year (1925) the startling fact presents itself that Japan possesses 22 cruisers to 10 for the United States, since the remaining 11 United States cruisers have all reached the cruiser age limit of 17 years.

(h) During the years 1930-34 the tremendous number of 245 United States destroyers and 72 submarines will have reached the age limit of 12 years, and it is during this period that the United States must lay down 5 capital ships and complete 2 of them.

(i) At present Japan has 12 submarines authorized, but not yet laid down, of 15,768 tons, which under analysis yields the following individual submarines:

- 1 submarine of 1,970 tons.
- 7 submarines of 1,400 tons.
- 1 submarine of 998 tons.
- 3 submarines of 1,000 tons (probably mine layers).

Total, 12 submarines of 15,768 tons.

In case the replacement program of 10 submarines of 1,500 tons is approved, Japan in 1931 will possess 27 fleet submarines, each of 1,400 tons or over, as against 5 fleet submarines for the United States.

(j) It will also become evident that for the United States to maintain even an equality ratio with Japan in auxiliary vessels the following ships must be completed in the years as shown in Table 5, in addition to the present program.

In case a second arms conference is convened in 1926 the total tonnage of auxiliary vessels built, building, and authorized for the United States and Japan will be as shown below. The tonnages provided for by the projected replacement program are included in the Japanese figures, and the fleet submarines and eight 10,000-ton cruisers of the United States program are included in the United States figures.

| Cruisers | | Destroyers | | Submarines | |
|----------|---------------|------------|---------------|------------|---------------|
| Japan | United States | Japan | United States | Japan | United States |
| 223,467 | 194,975 | 143,730 | 318,010 | 86,980 | 100,902 |

NOTES.—Gunboats and armored cruisers not included; third-class destroyers not included. Combining cruisers and destroyers, the total tonnage is as follows:

| Japan | United States | Cruiser and destroyer ratio | Submarine ratio |
|---------|---------------|-----------------------------|-----------------|
| 367,197 | 512,985 | 71:100 | 86:100 |

Excluding those vessels in each class that have reached the age limit, the figures would be as follows:

| Cruisers | | Destroyers | | Submarines | |
|----------|---------------|------------|---------------|------------|---------------|
| Japan | United States | Japan | United States | Japan | United States |
| 215,055 | 155,000 | 142,530 | 311,510 | 85,227 | 97,050 |

Combining cruisers and destroyers, the total tonnage and ratio is as follows:

| Japan | United States | Cruiser and destroyer ratio | Submarine ratio |
|---------|---------------|-----------------------------|-----------------|
| 357,585 | 466,510 | 76:100 | 87:100 |

In 1928, when the conversion of *Notoro* to an airplane tender is completed, Japan will have attained an equality ratio with the United States in respect to airplane carriers.

TABLE 1

| Year | Cruisers | | | | | Destroyers | | | | | Submarines | | | | | | |
|-------|-----------|---------------|----------------------|-----|---------------|------------|---------------|----------------------|-----|---------------|------------|---------------|----------------------|-----|---------------|-------|---------------|
| | Age limit | | Construction program | | | Age limit | | Construction program | | | Age limit | | Construction program | | | Total | |
| | Japan | United States | Japan | | United States | Japan | United States | Japan | | United States | Japan | United States | Japan | | United States | Japan | United States |
| | | | Old | New | | | | Old | New | | | | Old | New | | | |
| 1920 | 1 | 4 | | | | | | | | | 1 | | | | | | |
| 1921 | 1 | 3 | | | | | | | | | 1 | | | | | | |
| 1922 | | 1 | 3 | | | | | 10 | | 3 | | | 11 | | 7 | 24 | 10 |
| 1923 | | | 3 | | 5 | | | 7 | | | 3 | | 6 | | 19 | 16 | 24 |
| 1924 | | | 1 | | 5 | | | 5 | | | 1 | | 7 | | 8 | 13 | 13 |
| 1925 | | 3 | 4 | | | | 2 | 7 | | | | 1 | 4 | | 4 | 15 | 4 |
| 1926 | | | 1 | | | | 3 | 1 | | | | 9 | 6 | | 1 | 8 | 1 |
| 1927 | 1 | | 2 | | 2 | 1 | 5 | 2 | | | | | 6 | | 1 | 10 | 3 |
| 1928 | | | 2 | | | 1 | 6 | 7 | 1 | | 2 | 4 | 6 | | 2 | 16 | 2 |
| 1929 | 3 | | 2 | | | 7 | 5 | 7 | 3 | | 1 | 6 | 6 | | | 18 | |
| 1930 | | | | 2 | | 7 | 41 | | 8 | | | 29 | | 5 | | 15 | |
| 1931 | | | | 2 | | 4 | 99 | | 8 | | 2 | 22 | | 5 | | 15 | |
| 1932 | | | | | 13 | 73 | | | | 8 | | 9 | | | | | |
| 1933 | | | | | 14 | 29 | | | | | 7 | 4 | | | | | |
| 1934 | | | | | 10 | 3 | | | | | 11 | 8 | | | | | |
| 1935 | | | | | 7 | | | | | | 6 | 19 | | | | | |
| 1936 | 2 | | | | 4 | | | | | | 6 | 8 | | | | | |
| Total | 8 | 11 | 18 | 4 | 12 | 68 | 266 | 46 | 20 | 3 | 49 | 119 | 52 | 10 | 42 | 150 | 57 |

NOTES.—1. Under the columns "Construction program, United States," only those vessels are included the construction for which Congress has made appropriations.

2. In the "Age-limit" columns opposite 1920 are included some vessels which have reached the age limit prior to 1920.

3. The numbers under the columns headed "Age limit" represent vessels which have reached the age limit in the years indicated, 17 years for cruisers and 12 years for destroyers and submarines.

4. Japanese destroyers under 835 tons not included.

5. Cruisers do not include gunboats or old armored cruisers.

6. Numbers in "Construction-program" columns show ships completed in years specified.

TABLE 2.—Present program

| Year | Plane carriers | | Capital ships | | Air forces | |
|------------|----------------|---------------|---------------|---------------|------------|---------------|
| | Japan | United States | Japan | United States | Japan | United States |
| 1920..... | | | | | | |
| 1921..... | | | | | | |
| 1922..... | | | | | | |
| 1923..... | | | | 2 | | |
| 1924..... | | | | | | |
| 1925..... | | | | | | 4 |
| 1926..... | 1 | 1 | | | 1 | 4 |
| 1927..... | 1 | 1 | | | 2½ | |
| 1928..... | 1 | | | | 1 | |
| 1929..... | 1 | | | | ½ | |
| 1930..... | | | | | 1 | |
| 1931..... | | | | | | |
| 1932..... | | | | | | |
| 1933..... | | | | | | |
| 1934..... | | | 1 | 2 | | |
| 1935..... | | | 1 | 2 | | |
| 1936..... | | | 1 | 1 | | |
| Total..... | 3 | 2 | 3 | 7 | 6 | 8 |

1 This represents the completion of the special service ship *Notoro* as an airplane carrier.

TABLE 3.—Assuming Japanese replacement program is approved

| Year | Cruisers | | Destroyers | | Submarines | |
|-----------|----------|---------------|------------|---------------|------------|---------------|
| | Japan | United States | Japan | United States | Japan | United States |
| 1925..... | 22 | 10 | 75 | 264 | 49 | 123 |
| 1926..... | 23 | 10 | 76 | 261 | 55 | 115 |
| 1927..... | 24 | 12 | 77 | 256 | 61 | 116 |
| 1928..... | 26 | 12 | 84 | 250 | 65 | 114 |
| 1929..... | 25 | 12 | 87 | 245 | 70 | 108 |
| 1930..... | 27 | 12 | 88 | 204 | 75 | 79 |
| 1931..... | 29 | 12 | 92 | 105 | 78 | 57 |
| 1932..... | 29 | 12 | 79 | 32 | 70 | 48 |
| 1933..... | 29 | 12 | 65 | 3 | 63 | 44 |
| 1934..... | 29 | 12 | 55 | 0 | 52 | 36 |

NOTE.—Excludes cruisers 17 years old. Excludes destroyers and submarines 17 years old.

TABLE 4.—Assuming Japanese replacement program is disapproved

| Year | Cruisers | | Destroyers | | Submarines | |
|-----------|----------|---------------|------------|---------------|------------|---------------|
| | Japan | United States | Japan | United States | Japan | United States |
| 1925..... | 22 | 10 | 75 | 264 | 49 | 123 |
| 1926..... | 23 | 10 | 76 | 261 | 55 | 115 |
| 1927..... | 24 | 12 | 77 | 256 | 61 | 116 |
| 1928..... | 26 | 12 | 83 | 250 | 65 | 114 |
| 1929..... | 25 | 12 | 83 | 245 | 70 | 108 |
| 1930..... | 25 | 12 | 76 | 204 | 70 | 79 |
| 1931..... | 25 | 12 | 72 | 105 | 68 | 57 |
| 1932..... | 25 | 12 | 59 | 32 | 60 | 48 |
| 1933..... | 25 | 12 | 45 | 3 | 53 | 44 |
| 1934..... | 25 | 12 | 35 | 0 | 42 | 36 |

NOTE.—Excludes cruisers 17 years old. Excludes destroyers and submarines 17 years old.

JAPAN

NAVAL PERSONNEL

The following information showing naval personnel active and reserve in the Japanese Navy on September 1, 1925, is believed to be correct:

Officers

| | Active list | First and second reserves |
|-----------------------------|-------------|---------------------------|
| Line..... | 2, 620 | 793 |
| Engineer..... | 972 | 250 |
| Medical..... | 399 | 218 |
| Pharmacist..... | 22 | 11 |
| Paymaster..... | 383 | 176 |
| Construction..... | 64 | 25 |
| Construction, engineer..... | 32 | 11 |
| Ordnance..... | 135 | 25 |
| Hydrographic..... | 5 | 1 |
| Total..... | 4, 632 | 1, 510 |

Officers—Continued

| | Special officers | | Warrant officers | |
|-----------------|------------------|---------|------------------|---------|
| | Active | Reserve | Active | Reserve |
| Line..... | 492 | 327 | 665 | 224 |
| Engineer..... | 413 | 220 | 597 | 115 |
| Bandmaster..... | 6 | 7 | 11 | 4 |
| Carpenter..... | 32 | 40 | 51 | 16 |
| Pharmacist..... | 15 | 27 | 42 | 20 |
| Paymaster..... | 64 | 52 | 123 | 44 |
| Total..... | 1,022 | 673 | 1,489 | 424 |

Men

| | Petty officers | | Men | |
|-----------------------|----------------|---------|--------|---------|
| | Active | Reserve | Active | Reserve |
| Seamen..... | 5,452 | 6,452 | 25,562 | 15,136 |
| Engineer's force..... | 5,803 | 4,145 | 15,551 | 9,955 |
| Musicians..... | 112 | 69 | 151 | 20 |
| Carpenters..... | 327 | 175 | 651 | 420 |
| Sick bay..... | 426 | 182 | 973 | 237 |
| Paymaster..... | 957 | 616 | 2,327 | 1,245 |
| Total..... | 16,107 | 11,640 | 49,805 | 27,015 |

Reserves (graduates of merchant-marine schools)

| | Line | Engineer | Total |
|-----------------------|------|----------|-------|
| Officers..... | 269 | 232 | 501 |
| Special officers..... | 38 | 8 | 46 |
| Warrant officers..... | 161 | 79 | 240 |
| Petty officers..... | 214 | 115 | 332 |

JAPAN**MISCELLANEOUS NOTES**

September, 1925

[From the Japanese press]

Astra dirigible

The Astra dirigible stationed at Kasumigaura has been found unsafe even for training purposes. Orders have been issued not to make any more flights and may shortly be abandoned, due to frequent trouble and defects.

However, as the military value of the dirigible has not yet been determined, it is expected that an order for the latest type semi-rigid dirigible will be placed in Germany, this dirigible to be used for training purposes.

Heinkel hydroplane

The Aichi Clock & Electric Co., Nagoya, recently acquired the right to manufacture Heinkel hydroplanes. They will manufacture no more F-5 machines.

One of the Heinkel planes shipped from Germany is being assembled at the Yokosuka Naval Air Station. This plane will be tried out on board the depot ship *Hosho* under the direction of Mr. Warnemunde, one of the experts representing the German manufacturers.

The taking off of hydroplanes from ship's deck is a matter which is being closely studied by many countries, and this will be the first trial in this country. The details and the results of the trials will be kept secret by the navy, however; the plane will be sent out by means of catapult and will not use rollers. The length of catapult is 120 meters, and this arrangement, as well as that of the floats, are of special construction characteristic of this type of plane. The float and some parts of the hydroplane are constructed of metal.

Napier Lion 450-horsepower engine is expected to be used.

This type of plane is suitable for long-distance flight and is able to take off from deck, being in this respect similar to the Rohrbach hydroplanes which the Mitsubishi Internal Combustion Engine Co. will soon start building.

Submarine launchings

Submarine *I-55* (1,400 tons) was launched at the Kure Navy Yard September 2, 1925.

Submarine *I-54*, under construction at the Sasebo Naval Station, is expected to be launched December 10, 1925.

One of the characteristics of the *I-55* is that she is equipped with hooks on the sides and two life turrets at the bow and stern. The hooks are intended for hooking and hauling up in case of the sinking of the submarine and the life turrets for the escape of her crew.

One of the characteristics of both these submarines is that they will be equipped with dome-shaped structures on deck, one on the bow and one on the stern, to provide for escape for the crew in case of accident. These dome-shaped structures are to be about 5 feet in height and 6 feet in width.

Should the submarine meet with an accident, the crew will don life-saving suits and proceed to these domes, close up the compartment, and allow water to flow in from the side until the pressure of the air within is equal to that of the water pressure on the outside, open the hatch, and come to the surface of the water. Those following will drain the water out of the compartment into the hull

of the submarine and repeat the same process. The life-saving suit to be adopted is the German type. This submarine will also be equipped with double-hatch doors at all places leading into the inner hull.

NOTE.—It is believed, if there is any truth in this article, that these dome-shaped structures on deck are intended for the stowage of submarine airplanes.

Submarine *I-58* (1,400 tons) was launched at the Yokosuka Naval Station on October 3, 1925.

Submarine *RO-65* was launched at the Kawasaki Dockyard, Kobe, on September 19, 1925.

NOTE.—According to this report (par. 5, p. 59, July BULLETIN), which stated *RO-65* as probably building at the Mitsubishi Dockyard, Kobe, is in error

Photographing from a submerged submarine

The submarine school at Kure has for some time been experimenting on photographing through the periscope of a submarine, a special apparatus having been installed on submarine *RO-19* for this purpose.

The experiment having proved successful, further experiments will be conducted during the coming instruction maneuvers of the submarines attached to the submarine school (Eleventh, Fifteenth, and Sixteenth Submarine Divisions), September 14 to 20, around Shimonoseki to determine its military value.

Submarine net

During the coming maneuvers to be held in October, great importance will be attached to aerial and submarine warfare, more especially the latter. As the capital is located in Tokyo-wan, this place is certain to be the center of submarine activity, and in order to protect against this submarine nets at a depth of 30 feet will be laid and also an arrangement to keep away mines.

In order to attend to this work 200 men from Sasebo Naval Station and 100 men from Kure Naval Station left on board the *Seito* for Yokosuka.

Submarine RO-21 has accident to engine

Submarine *RO-21* of the fifth division while engaged in maneuvers with the submarines attached to the submarine school off the Prov-

ince of Tosa on September 15 found a crack in the Diesel engine. She was forced to quit the maneuvers and proceeded to Kure.

She will be tied up for some time to undergo repairs.

Plans for raising a sunken submarine

Salvage operations with the former German submarines outside the Yokosuka Naval port since August 14, 1925, were completed on September 6, 1925, and the navy department will announce the results at a later date. Experiments are said to have firmly established the belief that a submarine sunk at a depth of 160 feet can be hauled up in about 30 minutes.

The special service ship *Asahi*, which was used in the operations, is to proceed to Hiroshima Bay by the end of next month to make another trial, as in weight and size there is great discrepancy between the German submarines and those now in active service, and success with the former does not guarantee success with the latter.

In the operations in Hiroshima Bay it is proposed to put to trial a submarine with full complement to see how quickly she can be hauled up.

JAPAN

WILL JAPAN FIGHT WITH AMERICA?

FEAR OF IGNORANCE

By Vice Admiral SEIJIRO KAWASHIMA, Ret.

(Translation of extract)

PREFACE

One day, calling on me, Mr. Seijiro Kawashima asked me to preface his work entitled "Will Japan Fight With America?"—"Fear of Ignorance." In the book I find his remarks, from strategical observations of the Pacific down to a comparison of the Japanese and American naval strengths, enter into details and particulars. Especially, what he describes of the actions of submarines and airplanes are graphic representations of the Chinese strategist Sun's notable saying: "He who defends well conceals himself at the bottom of the earth; he who attacks well operates from the top of the heaven." In the profoundness of his military knowledge, the writer can well nigh bid defiance to a professional.

In recent times the center of the world's command of the sea is passed from the Atlantic to the Pacific. The political ascendancy of a power is going to increase or decrease according to the power's command of the sea of the Pacific. It is never by haphazard that the writer has given out the present work at this very conjecture.

It would, however, be improper to look on this book as a mere bellicose reading which follows the fashion of the times. For, in studying the Pacific problem, one must first deal with the true aspects of the command of the sea; and in making clear the true aspects of the command of the sea one must first touch the delicate point which is the vital factor in the command of the sea—the handling of troops on both sides. The writer's aim also lies here, I believe. Nor is this all. The opinion held by him is always fair and just, as will be seen from the fact that his "Appeal to the Peoples of Japan and America" at the time of the first Washington Conference was translated into English and read widely abroad. His writings can be said to voice loudly the elevated thoughts of our publicists at large.

My acquaintance with the present writer dates back from the time I wrote a preface to his former work "On the Navy in Defence of the Country." Since that time we have seen springs and autumns come and go 15 times. His hair is now hoary, though he is not much advanced in years. Is not this because he has been absorbed in the Pacific problem?

Of late, whilst the holding of a second Washington Conference is persistently reported, rumors run wild of America's naval expansion program or of Britain's revival of the Singapore naval base. Is it a rain, is it a storm, or is it a clear day that is coming? The future fate of mankind in the world is about to be decided by the weather on the Pacific Ocean.

Like the present writer, I have been looking on the Pacific problem with keen interest for these many years. For his reference I here give some of my impressions.

TOSHIATSU SAKAMOTO, *Admiral*.

1925.

PREFACE

America's great naval maneuvers disregarding the world opinion are going to be started to-morrow. For nine months to come the whole Pacific will be occupied under the influence of America under the name of maneuver. Should the situation give use to an unexpected change, the Pacific might forever become the pond of America as the Americans constantly say; and we must turn their slaves. Do not regard us as oversensitive—do not say that suspicion gives birth to a phantom. Who can foresee a contingency? No, the thing before us is not one that is altogether beyond imagination. It may be an unexpected occurrence hard for the Japanese to foresee; yet, it may, we fear, be a previously appointed action to the Americans.

Why a previously appointed action? When America proposed the Washington conference, I considered the act as a declaration of

war against Japan. The war was opened three years ago. The Japanese fleet had several of its ships sunken under a blow at the land sea-battle of Washington. Thereafter America spared no labor in pressing us down. Seeing that we are submissive and can not do anything, she has now come to carry out the great naval maneuvers. What her aspiration aims at is too evident.

If things come to this strait, Mr. Kawashima's speculation on a Japanese-American war is all to no purpose. If Japan stands as an inactive onlooker as she now does, it will be no use arguing about victory or defeat. The Japanese must now take a resolution. If this resolution forces the authorities into a positive action, it does not matter whether Mr. Kawashima's will is fulfilled or not. That is the only way of ensuring the safety of Japan.

Mr. Kawashima is the only naval journalist our country can boast. His profound knowledge and thoughtful study are highly appreciated by our people, both official and unofficial. Especially, his fervor of patriotism has long commanded our respect and admiration. This very man has made this very book at this very time. It is by no means a mere coincidence, we can see. I can not but ardently wish for the Japanese making a firm resolution through this book.

JANUARY 3, 1925.

SHINGO UYESUGI, *Doctor.*

WRITER'S PREFACE

In 1909, Homer Lee, a general of the American militia, published a book entitled "Valor of Ignorance," in which he pointed out the foolishness of his countrymen who he alleged were ignorant of a likely invasion by Japan, made no preparations for the defence of their country, and were innocently sleeping fast. Awakening them from their slumber, he engaged personally in building up a great navy and a great army, which are now in such a splendid state. At that time his arguments echoed throughout the whole world; his work was translated into upward of ten languages. In our country, too, it was introduced as a version named "War Inevitable Between Japan and America." He who did not speak of the version was deemed, as it appeared, unqualified for a man of the well-informed circle. In turning out attention and seeking the best contrast, we find that our people, notwithstanding theirs is a martial country in the East, apparently have no clear ideas of national defense and are dead altogether to the pressure laid upon them by the Washington conference, all they do being feigned indifference while abjectly yielding to the outrageous dictates of the opponent country. Even when soon later insulted with the anti-Japanese immigration legislation, they are still thinking that they have no power at all to fight America and consequently have to abide any disgrace what-

ever. This is, we dare say, from "fear of ignorance" toward America—the mental imbecility into which they have fallen; it is an extreme case of self-humiliation, a ludicrous self-abasement. In this book there is something which is not an argumentation in direct retort to Homer Lee's work, but represents the same spirit with his place and mind changed, so to speak. Daring to arouse our people and point out their stupidity in fearing America groundlessly, and making a detailed comparative study of the military considerations on both sides, I wish them to make up their minds resolutely and never shrink from a war with America. This is the reason why I give my work the title, "Will Japan Fight With America?" America is now going to carry out unparalleled gigantic-scale maneuvers in the Pacific before long; and forming battle array in front of our territory and displaying her mighty powers, impose some great pressure upon us in the political or the military way. Should we lack preparation and determination against that, our country might fall into a highly fateful condition. The crisis of the country is imminent, we might say.

I am very much indebted to the kindness of my friend, Mr. Noma, for inquiries given in Chapter V concerning the scales on which the American bases on the Pacific side are, and the maps contained in Chapter 8. I here give special mention of that to express the sense of my gratitude. Though not directly relevant to the contents of this book, two or three articles on important subjects are attached to the end, in view of the momentousness of the existing situation.

THE WRITER.

JANUARY, 1925.

"WILL JAPAN FIGHT WITH AMERICA"

CHAPTER I

Japan-America war forced on us

Our country is always fated to be forced into war by another country. So it was with the war with China; so it was with the war with Russia. A war with America is being forced on us by that country since ten-odd years ago. After all, by Divine command, shall we have to wage a war? For, since America changed her attitude toward us at the time of our peacemaking with Russia, and assumed the posture of knocking us down in envy of our position in the world, the relations between Japan and America have naturally been those between supposed enemies. Actuated by the much-talked-of school-children problem, the anti-Japanese question grew ever in intensity and culminated in the enforcement of the recent outrageous anti-Japanese immigration act. Nowadays our people, indulgent as they are, seem to be much excited. But America,

acting in a more and more high-handed manner, will not stop, as it appears, until she has forced a war on our country by all means. Since the war with Russia we have wished to fulfill our naval preparations by building even one more warship to provide against an evil day. This was only to do the best in human power and leave the rest to Divine disposal. As it happened, however, the so-called Washington conference turned up all of a sudden and threatened to undermine our preparations from the very bottom. Patriots tried desperately to avert the evil, but a slavish spirit gaining the ascendancy eventually coerced the plenipotentiary and the whole nation into submission to the naval limitation of 60 per cent ratio. Lamenting, some said that America had, sitting quietly, destroyed part of our fleet; and others exclaimed that America had caused Japan to fill up the most of her citadel. Laying pressure after pressure on us in quick succession, America forced an immigration law unparalleled in injustice; and now she advances a step more and is going to carry out bluntly maneuvers of great operations against Japan in the Pacific. Further, in the near future, she designs to thwart our auxiliary-ship program by convening a second Washington conference, with an extremely high-handed attitude. Can the Japanese, vindications of justice, sit contentedly any longer?

At present a Japan-America war seems to be an unavertable destiny. Yet, fear of it for itself is nothing but fear of ignorance. A war between Japan and America is never fearful to Japan.

CHAPTER II

It would now be of no use for us to regret the effect brought on us by the Washington conference; but, as a warning for the future, the following table must be well kept in our minds:

RATIO OF SUPERIORITY IN SUPERDREADNOUGHTS AFTER DEPRIVATION

Table showing yearly comparisons of Japanese and American superdreadnoughts (ordnance of 14-inch or larger caliber)

| | Japan (number of craft) | America (number of craft) | Ratio |
|------------------------------------|-------------------------------|---------------------------------|-------|
| Time of Washington conference..... | 9 | 12 | 7.50 |
| March, 1923..... | 10 | 12 | 8.33 |
| March, 1924..... | 14 | 15 | 9.33 |
| March, 1925..... | 16 | 19 | 8.42 |
| March, 1926..... | 20 | 27 | 7.40 |
| March, 1927..... | 22 | 27 | 8.15 |
| March, 1928..... | 24 | 27 | 8.88 |

Previous to the Washington conference both Japan and America kept up completing their navies. When the competition at length

became keen, even America began to feel an uncommon menace, as her finances after the European War did not permit of an endless race, and Japan was every moment gaining on her. Looking back, she abruptly proposed to stop the race. That might have been all right if on condition that the existing state be maintained. But America eventually forced down Japan to the 60 per cent level, counting even old-type dreadnoughts with armaments of 12-inch or smaller caliber. Had the Japanese plenipotentiary contended by taking at least the superdreadnoughts as standard, he would have succeeded in securing 75 per cent, or 83.3 if the *Mutsu* be included. (N. B.—Britain would have had no more than 18 ships as set against Japan, or 22 even if 4 on a new building program be counted in; thus destined to be the naval power in the third place.)

Had there not been the Washington conference, Japan will have been able to fight in a position extremely superior, as will be seen from the preceding table. Despite that, she voluntarily humiliated herself and threw away the die given her by God with special grace. Really there is no remedy to a fool. If the people charge the great work of national defense to the authorities alone and stand as indifferent onlookers, they will always have to take such serious consequences.

CHAPTER III

Fleet powers of Japan and America

On the above assumption that Japan and America at last come to blows what is of first importance is a comparison of their fleet powers. The ratio of their capital ships and aircraft carriers was definitely fixed to be 5 to 3: or in other words, the Japanese strength was limited to 60 per cent of the American. Luckily, however, as no restrictions was imposed on us as to cruisers and all smaller auxiliary ships, we must concentrate upon this line to make up for the insufficiency in the strength of our capital ships. The following is a comparison of the present fleets of the two countries:

JAPANESE FLEET

Capital ships, 10 (already completed, 6 battleships and 4 battle cruisers)

| | Displacement | Speed | Main armament |
|-----------------------|--------------|-------|------------------|
| Fuso (1915)..... | 30,600 | 22.5 | 12 14-inch guns. |
| Yamashiro (1917)..... | 30,600 | 22.5 | Do. |
| Ise (1917)..... | 31,260 | 23.0 | Do. |
| Hyuga (1918)..... | 31,260 | 23.0 | Do. |
| Nagato (1920)..... | 33,800 | 23.0 | 8 16-inch guns. |
| Mutsu (1921)..... | 33,800 | 23.0 | Do. |
| Kongo (1913)..... | 27,500 | 27.5 | 8 14-inch guns. |
| Hiyei (1914)..... | 27,500 | 27.5 | Do. |
| Haruna (1915)..... | 27,500 | 27.5 | Do. |
| Kirishima (1915)..... | 27,500 | 27.5 | Do. |

Cruisers, 25 (completed, 14; not yet completed, 11)

| | Displacement | Speed | Main armament |
|---|--------------|-------|-----------------------|
| Kako (construction started) | 7,100 | 35.0 | 6 8-inch guns, etc. |
| Furutaka (construction started) | 7,100 | 35.0 | Do. |
| Kinugasa (construction started) | 7,100 | 35.0 | Do. |
| Aoba (construction started) | 7,100 | 35.0 | Do. |
| Myoko (order given) | 10,000 | 32.0 | 8 8-inch guns, etc. |
| Nachi (construction not yet started) | 10,000 | 32.0 | Do. |
| Ashigara (construction not yet started) | 10,000 | 32.0 | Do. |
| Haguro (construction not yet started) | 10,000 | 32.0 | Do. |
| Tenryu (1919) | 3,500 | 31.0 | 4 5-inch guns, etc. |
| Tatsuta (1919) | 3,500 | 31.0 | Do. |
| Kuma (1920) | 5,500 | 32.0 | 7 5-inch guns, etc. |
| Tama (1921) | 5,500 | 32.0 | Do. |
| Kitagama (1921) | 5,500 | 32.0 | Do. |
| Oi (1921) | 5,500 | 32.0 | Do. |
| Kiso (1921) | 5,500 | 32.0 | Do. |
| Kagara (1922) | 5,570 | 32.0 | 7 5.5-inch guns, etc. |
| Isozu (1923) | 5,570 | 32.0 | Do. |
| Natori (1922) | 5,570 | 32.0 | Do. |
| Yura (1923) | 5,570 | 32.0 | Do. |
| Kinu (1922) | 5,570 | 32.0 | Do. |
| Abukuma (not completed yet) | 5,570 | 32.0 | Do. |
| Naka (destroyed by earthquake) | 5,570 | 32.0 | Do. |
| Sendai (1924) | 5,570 | 32.0 | Do. |
| Jintsu (not completed yet) | 5,570 | 32.0 | Do. |
| Yubari (1923) | 3,100 | 33.0 | 6 5.5-inch guns, etc. |

Destroyers, 10½ (first class, 53; second class, 51; total, 10½, of which 2½ are not yet completed)

| | | |
|---|-------|------|
| Umikaze type, 2 (1911) | 1,150 | 33.0 |
| Urakaze type, 1 (1915) | 907 | 28.0 |
| Isokaze type, 4 (1917) | 1,227 | 34.0 |
| Tanikaze type, 2 (1918-19) | 1,300 | 34.0 |
| Minakaze type, 15 (1920-1922) | 1,345 | 34.0 |
| Of odd numbers (1, 3, 5) types, 3 (1923) | 1,400 | 34.0 |
| Of odd numbers (7 and 9) types, 2 (1924) | 1,400 | 34.0 |
| Of odd numbers (11-17) types, 4 (not yet completed) | 1,400 | 34.0 |
| Of odd numbers (19-27) types, 5 (not yet completed) | 1,445 | 34.0 |
| Not yet named, 15 (construction not yet started) | 1,400 | 34.0 |
| Sakura type, 2 (1912) | 600 | 31.0 |
| Kaba type, 10 (1915) | 666 | 31.0 |
| Momo type, 4 (1917) | 835 | 31.5 |
| Nara type, 27 (1918-1922) | 850 | 31.5 |
| Of even numbers (2-18) types, 8 (1923-24) | 900 | 31.5 |

Submarine, 76 (?). (Though our Government makes no official announcements of submarines, it appears that there are 76 known to the public, of which 5½ are launched and 22 not yet completed)

| | Above water | | Discharging tubes |
|---|-------------|------|-------------------|
| No. 18 to No. 24, 7 (launched 1917-1920) | 689 | 18.0 | 6 |
| No. 25 to No. 30, 6 (1919-1921) | 740 | 18.0 | 6 |
| No. 31 to No. 43, 13 (1919-1921) | 900 | 17.0 | 6 |
| No. 44 to No. 84, 28 (1921-1924) | 740 | 18.0 | 6 |
| No. 84 and following, 22 (?) (not yet completed) ¹ | (?) | (?) | (?) |

¹ According to the Blatsyai (?) Year Book, some of these are said to have a tonnage varying from 1,250 to 2,000 and a radius of endurance of 10,000 sea miles or more. They are also reported to develop an above-water speed of 17 to 20 knots. No. 79 sank down.

Aircraft carriers, 3 (of which 1 is completed)

| | Displacement | Speed | Main armament |
|--------------------------------|--------------|-------|------------------|
| Hosho (1922)..... | 9,500 | 25.0 | 4 4.7-inch guns. |
| Akagi (not yet completed)..... | 27,000 | (?) | (?). |
| Kaga (not yet completed)..... | 27,500 | (?) | (?). |

Others (of which only those underlined can be used on the first line or most effectively)

Old armored cruisers, 8.

Old cruisers, 8 (of which the *Tone*, *Chikuma*, *Hirado*, and *Yahagi* are of some service).

Third-class destroyers, 33.

Torpedo boats, 3.

Old-type submarines, 10.

First-class gunboats, 4 (of which 1 is of a new type).

Second-class gunboats, 9 (of which 5 are of new type).

Provisional aircraft carrier, 1 (the *Wakamiya*).

Torpedo-depot ships, 4 (of which 2, the *Jingei* and *Chogei* are of a new type, though not yet completed).

Mine layers, 2 (of which one, the *Shoriki*, is of a new type).

Mine sweepers, 6 (all of a new type; 3 not yet completed).

Provisional-repairing ships, 1, the *Kanto*, which sank down.

Transports, 19 (of which 17 are of new type).

Ice breakers, 1 (of a new type).

Surveying ships, 4.

Target ships, 1 (the *Settau*).

Training special-service ships, 3 (the *Asahi*, *Shikishima*, and *Fuji*).

[NOTE.—Above tables are accurate except for submarines.]

AMERICAN FLEET

Capital ships, 18 (all battleships and completed)

| | Displacement | Speed | Main armament |
|---|--------------|-------|------------------|
| Florida (1911)..... | 21,825 | 22.0 | 8 12-inch guns |
| Utah (1911)..... | 21,825 | 22.0 | Do. |
| Arkansas (1912)..... | 26,000 | 21.0 | 12 12-inch guns. |
| Wyoming (1912)..... | 26,000 | 21.0 | Do. |
| Texas (1914)..... | 27,000 | 21.0 | 10 14-inch guns. |
| New York (1914)..... | 27,000 | 21.0 | Do. |
| Nevada (1916)..... | 27,500 | 20.5 | Do. |
| Oklahoma (1916)..... | 27,500 | 20.5 | Do. |
| Pennsylvania (1916)..... | 31,400 | 22.0 | 12 14-inch guns. |
| Arizona (1916)..... | 31,400 | 22.0 | Do. |
| Mississippi (1917)..... | 32,000 | 21.0 | Do. |
| New Mexico (1918) ¹ | 32,000 | 21.0 | Do. |
| Idaho (1919)..... | 32,000 | 21.0 | Do. |
| Tennessee (1920) ¹ | 32,000 | 21.0 | Do. |
| California (1921) ¹ | 32,000 | 21.0 | Do. |
| Maryland (1921) ¹ | 32,600 | 21.0 | 8 16-inch guns. |
| West Virginia (1923) ¹ | 32,600 | 21.0 | Do. |
| Colorado (1921) ¹ | 32,600 | 21.0 | Do. |

¹ Electrically driven.

Cruisers, 18 (10 completed, 8 scheduled)

| | Displacement | Speed | Main armament |
|-----------------------------------|--------------|-------|----------------------|
| No. 1, scheduled for 1925-26..... | 10,000 | (?) | 8-inch guns (?). |
| No. 2, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 3, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 4, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 5, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 6, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 7, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| No. 8, scheduled for 1925-26..... | 10,000 | (?) | Do. |
| Omaha (1923)..... | 7,500 | 33.75 | 12 6-inch guns, etc. |
| Richmond (1923)..... | 7,500 | 33.75 | Do. |
| Detroit (1923)..... | 7,500 | 33.75 | Do. |
| Concord (1923)..... | 7,500 | 33.75 | Do. |
| Cincinnati (1923)..... | 7,500 | 33.75 | Do. |
| Raleigh (1924)..... | 7,500 | 33.75 | Do. |
| Trenton (1924)..... | 7,500 | 33.75 | Do. |
| Marblehead (1924)..... | 7,500 | 33.75 | Do. |
| Memphis (1924)..... | 7,500 | 33.75 | Do. |

Destroyers, 316 (completed)

| | | | |
|--|-------|------|-----------------------------------|
| Paulding (?) type 21, (1910-1912)..... | 742 | 21.0 | To be struck out sooner or later. |
| Cassin (?) type, 19 (1912-1916)..... | 1,020 | 29.0 | |
| | 1,050 | 30.0 | |
| Sampson type, 121 (1916-1920)..... | 1,185 | 35.0 | |
| Doubleglen type, 155 (1919-1922)..... | 1,215 | 35.0 | |

Submarines, 99 (23 not yet completed)

| | | | |
|-------------------------------------|-------|-------|-------------------|
| No. 1-No. 16, 16 (1918)..... | 520 | 14.0 | Torpedo tubes, 4. |
| R 1-R 27, 27 (1918-1919)..... | 569 | 13.5 | Do. |
| S 1-S 51, 50 (1922)..... | 854 | 15.0 | Do. |
| (S 22 not yet completed)..... | 900 | ----- | Torpedo tubes, 5. |
| T 1-T 3, 3 (1919-20)..... | 1,106 | 21.0 | Torpedo tubes, 8. |
| V 1-V 3, 3 (not yet completed)..... | 2,114 | 21.0 | Torpedo tubes, 6. |

Aircraft carriers, 4 (2 not yet completed)

| | | | |
|------------------------------------|--------|----------|----------------|
| Langley (?)..... | 19,360 | 15.0 | 4 5-inch guns. |
| Wright (?)..... | 14,240 | 15.0 | |
| Saratoga (not yet completed)..... | 33,000 | 35.0 (?) | (?). |
| Lexington (not yet completed)..... | 33,000 | 35.0 (?) | (?). |

Others (every number underlined includes one or more up-to-date ships)

Old armored cruisers, 10.

Old cruisers, 6.

Old light cruisers, 3 (of some service).

Old submarines, 26.

Patrol boats, 28.

Gunboats, 2 (up to date).

Boats of Eagle class and submarine chasers, 50.

Provisional aircraft carriers, 1 (*Aroostook*) (?).

Mine layers, 3.

Mine sweepers and tugs, many.

Submarine depot ships, 8 (1 not yet completed).

Destroyer depot ships, 9 (2 not yet completed).
 Repair ships, 6 (1 not yet completed).
 Store ships, 3.
 Hospital ships, 4.
 Coal ships, 2 (for Panama).
 Oil ships, 13.
 River gunboats, 8 (6 intended to be asked for in the next fiscal year).
 Coal ships, 12.

Generalizing the above, we find that in point of capital ships Japan is, of course, inferior to America, as the ratio is 6 to 10, but that in regard to cruisers she happens to be very much superior. The shortage in the ratio of capital ships must by all means be made up for by cruisers and other auxiliary ships. This is the point upon which we should concentrate.

As regards destroyers, America is far ahead, having as many as three times our number. Both countries are nearly neck to neck as to submarines. In the case of aircraft carriers, the ratio is also 6 to 10. Entering into details, but trying the explanation, we find the matter stands as follows:

PROBLEM OF MODERNIZING CAPITAL SHIPS

Japan has 10 capital ships, with a tonnage of 301,320; America, 18, with a tonnage of 525,850. With Japan, capital ships are of two kinds—the battleship and the battle cruiser; while America has only one kind—the battleship. As the battle cruiser is superior to that of the battleship in speed, though inferior in gun power and in armor, odds may rather be strategically and tactically in favor of Japan, which has to make special operations under the 60 per cent condition. Be that as it may, there are many old-fashioned warships in use. Very few of those up-to-date capital ships—of the so-called Post-Jutland type—which ought to have been added in rapid succession if there had not been the Washington Conference. Of that type Japan has only two, the *Nagato* and *Mutsu*, and America three—the *Maryland*, *Colorado*, and *West Virginia* (Britain three—the *Hood* and the newly-built *Nelson* and *Rodney*). All other ships are to be modernized with the limit of 3,000 tons imposed by the Washington treaty. The modernization refers specially to a partial feature of defense: it means arranging the protective deck against attack from the air, and providing blisters or bulges for submarine defense. It was based on the supposition that the ships designed before the battle of Jutland had perhaps lacked sufficient anticipation in these points. Other matters, as increasing side armor, or changing the caliber and number of main armament or the general equipment, are prohibited. There is no objection to increasing secondary armament, changing the engine, etc. Now, Japan and

America decided to effect the modernization gradually, the former wishing to start the work in 1923-24 at the cost of 50,000,000 yen and the latter in 1923-24 at the cost of \$30,000,000. In America an unexpected trouble has caused delay upon delay, and the estimate is not yet passed. Perhaps, however, the matter will get the approval of Congress in the present session, and be started in 1925-26. The American modernization contains the following items:

(1) To increase the elevation in firing of main armament on 13 ships; from the *Florida* down to the *New Mexico*.

(2) To increase arrangements on these ships for defence against attack from the air and in the water.

(3) To provide new type systems of fire control to the battleships *Texas* and *New York*.

(4) To change the coal-burning system of the battleships *Florida*, *Utah*, *Arkansas*, *Wyoming*, *Texas*, and *New York* to the oil-burning one.

As regards the change of the elevation of main armament, \$6,500,000 was asked for in the 1923-24 budget to meet the expenses of conversion, according to the results of inquiry that the ranges of advance on American warships were inferior generally by 5,000 to 10,000 yards to those of British naval guns. Abruptly, however, the British Government sent a note to the American Government, declaring "that the British capital ships have never got either elevation of their guns changed since they were put in commission or the defences of their decks increased since the signing of the Washington agreement on February 6, 1922." It protested that the American Government's change of elevation by alluding to the British Government was a violation of the Washington agreement. The American Government was astonished; Secretary of State Hughes and Undersecretary of the Navy Roosevelt hastened to recall their former explanations and apologized for their carelessness in Congress. The bill was to be left untouched in the said fiscal year and to be taken up for discussion the following fiscal year, 1924-25. But inquiry into the real aspect of things disclosed that the difference in range of British and American guns was not significantly wide. The British Government, on the other hand, made no hesitation in openly protesting against the Japanese and American Governments. So the bill was never introduced again, and the matter was dropped. The point at issue lies in the question whether the change of gun elevation is or is not a change in the so-called general equipment, as given in the Washington treaty. But this can be interpreted either way. However, leading members of the American naval community, with Admiral Coontz, commander in chief of fleets, at the head of the list, are wild with the exclamation: "We will not remain quiet until we have improved our gun ranges by all means." In fact, on the other hand, the Japanese and the French Navy ought to have

their gun elevation improvement started in secrecy. Ultimately, it might be expected, America will improve at her own discretion. A comparison of the present Japanese and American gun elevations and ranges will render it clear that the real aspects have become as follows in recent times:

| | Caliber (in inches) | Length (in caliber) | Elevation (in degrees) | Range (in yards) |
|--|------------------------|------------------------|---------------------------|---------------------|
| Japanese: | | | | |
| Nagato and Mutau classes, 2 (craft)..... | 16 | 48 | 35 | 35,000 |
| Fuso and Yamashiro classes, 4..... | 14 | 45 | 25 | ----- |
| Kongo and Haruna classes, 4..... | 14 | 45 | 25 | ----- |
| American: | | | | |
| Maryland class, 3..... | 16 | 45 | 30 | 34,000 |
| California class, 3..... | 14 | 50 | 30 | 34,000 |
| New Mexico class, 3..... | 14 | 50 | 15 | 24,000 |
| Texas, Nevada, and Pennsylvania classes, 5..... | 14 | 45 | 15 | 21,000 |
| Wyoming class, 2..... | 12 | 50 | 15 | 24,500 |
| Utah class, 2..... | 12 | 45 | 15 | 22,000 |
| British: | | | | |
| Nelson class, 2..... | 16 | 42 | 30 | 32,000 |
| Hood, 1..... | 15 | 42 | 30 | 30,300 |
| Queen Elizabeth and Royal Sovereign classes, 10..... | 15 | 42 | 20 | 24,300 |
| Renown class, 2..... | 15 | 42 | 20 | 24,300 |
| Iron Lake class, 4..... | 13.5 | 42 | 20 | 23,800 |
| Tiger class, 1..... | 13.5 | 42 | 20 | 23,800 |

As for Japan, the elevation has been 18° with both *Fuso* and *Kongo* classes. It has recently been changed, or is being changed, to 25°, as the report goes.

With reference to the second factor in modernization—the provision of defenses against air and submarine attacks—both America and Japan have started the work with none of their ships. Britain, however, has engaged vigorously in improvement along this line during and after the war. The defenses against air attack are generally completed. Only she has effected no improvement whatever since February 6, 1923. As regards defense against submarine attack, it is certain that five of the *Royal Sovereign* class and the *Repulse* are provided with bulges, but the ships of *Queen Elizabeth* class and the *Renown* are apparently not done so yet. There is not much information abroad concerning other craft. America asked in the 1924–25 Budget for the funds needed for starting the work with six old ships, together with the introduction of the oil-burning system. But it is left unsettled because of the failure of the bill.

The adoption of modern fire-control systems for the battleships *Texas* and *New York* forms no question of special criticism. But it is only worthy of our note in the point that as their ships differing from four older craft of the *Florida* class are equipped with 14-inch guns the said system is provided we imagine for the special system of enabling them to fight side by side with other capital ships forming the main force. At present they are acting in line with the four craft of the *Florida* class for the mere reason that they are coal burners.

There ought to be no objection whatever to changing the coal-burning systems in the four ships of the *Florida* class and the *Texas* to oil-burning systems. But with regard to this, too, the British Government astonished the Americans with a declaration made openly by Prime Minister MacDonald in Parliament, saying: "It goes against the spirit of the Washington treaty." To this declaration, however, the Americans paid no heed, as might have been expected. They asked for the funds in the 1924-25 Budget, but the matter is left unsettled, as in the two cases mentioned above, because the bill was not passed. In regard to the Budget for the said fiscal year, all naval appropriations of an extraordinary character failed to pass through the Houses owing to the fact that the Senate's Budget Committee made a reexamination of the Budget estimates and the term of session expired before submitting them to Congress for debate. Yet all these appropriations, as given in the 1925-26 Budget, were approved at the very beginning of the recent session of Congress. They aggregate to \$18,500,000.

Japanese and American gun powers compared.

| | Number of guns | Weight of metal fired (kilograms) | Initial energy (feet-tons) |
|--------------|-------------------|---|-------------------------------|
| Japan: | | | |
| 14-inch..... | 80 | 112,000 | 5,263,200 |
| 16-inch..... | 16 | 35,840 | 1,491,680 |
| Total..... | 96 | 147,840 | ¹ 6,754,880 |
| America: | | | |
| 12-inch..... | 20 | 17,400 | 976,680 |
| Do..... | 24 | 20,880 | 1,259,592 |
| 14-inch..... | 64 | 89,600 | 4,198,784 |
| Do..... | 60 | 84,000 | 4,565,220 |
| 16-inch..... | 24 | 50,400 | 2,361,744 |
| Total..... | 192 | 262,280 | ² 13,365,020 |

¹ Ratio, 5.05.

² Ratio, 10.

To our astonishment, the ratio of our gun power to the American is 5.05 to 10, though the ratio in number of capital ships is 5 to 10.

Our plenipotentiary to the Washington Conference really brought back horrible fruits with him: Japan must, however, fight successfully some way or other.

TO MAKE UP OUR SHORTCOMINGS IN CAPITAL SHIPS

Cruisers.—Fortunately, Japan stands in a favorable position in point of cruisers. It has been a peculiarity of America since the olden times to have a comparatively small number of cruisers; the reasons why being unknown to us. She makes destroyers perform the functions of cruisers. Destroyers, however, are unsuited for navigation in rough seas; their radius of action is insufficient; the

fatigue of their crews is too much: and their effective range to their wireless is short. In recent years the American naval interest has persistently complained of the shortage of cruisers and hastened to build 10 of the *Omaha* class with a total tonnage of 75,000. These are "Tiger's cubs" with America. Saving them. America has no cruisers efficient on the first line. Japan, on the contrary, has paid attention to the construction of cruisers with the *Kako* and *Tenryu* at the head of the list; total tonnage 166,130. Even now, with the exception of 6 first-class cruisers of the *Kako* and *Myoko* classes, the other 17, which are second class, are all complete or on the point of completion. In addition there are 4, the *Tone*, *Chikuma*, *Hirado*, and *Yahagi* (which are to be put into the second line sooner or later). At any rate Japan shows a superiority of 28 against 10 of America. Worried over this, the American Navy proposed in the 1924-25 budget the building of 8 cruisers (cost \$88,800,000) which are armed with 8-inch guns and of the largest size permissible within the bounds of the limitation laid by the Washington treaty, aggregating to 10,000 tons; together with the construction of 6 river gunboats (cost \$4,200,000) intended for use in China. But the programs were put off one year because the budget did not pass through the Houses. Of late it has, however, been approved by Congress in the 1925-26 budget. Consequently America is to have 18 cruisers totaling 175,000 tons in the near future. Meanwhile, however, our 8 of the *Kako* and *Myoko* classes * * *.

CHAPTER VIII—CAPTURE OF AMERICAN COLONIAL ISLANDS

PART 3. CAPTURE OF HAWAII

After the capture of Guam and the subjugation of the Philippine Islands the Japanese Fleet will also proceed to the task of capturing the powerful Hawaiian Islands. In other words, the Japanese Fleet advances upon and captures Hawaii. The way of advance becomes clear if we are careful to guard against the sudden attack of submarine craft and the peril of submarine mines. At present the waves of the Pacific may be said to be extremely calm. We take Wake Island and then Midway, and transport sufficient quantity of coal, oil, and essential supplies to these islands where they are stored, and then we leisurely proceed to the attack of Hawaii. In Hawaii, besides the island of Oahu, where Pearl Harbor and Honolulu are located, there are the islands of Hawaii, Maui, Kauai, and others, constituting the so-called Sandwich group. Among these there certainly should be places where the Japanese fleet can go without interference. With such a place as a base we may set about cap-

turing the island of Oahu, upon which are Honolulu and Pearl Harbor. The present military force here is as follows:

- Division headquarters. 1.
- Infantry brigade headquarters, 2.
- Infantry, 4 regiments.
- Field Artillery brigade headquarters, 1.
- Field Artillery, 3 regiments.
- Engineers, 1 regiment.
- Special heavy artillery, 1 regiment and 1 battalion.
- Air Service, 1 battalion and 1 company (5 companies).
- Antiaircraft artillery, 1 regiment.
- Coast Artillery, 2 regiments (8 companies).

As these are about all there are, the capture is not much of a question. However, there is the question of landing, but an examination of Oahu Island will show where this is to be and a landing should not be attempted at all from the south front. Along the south front from Diamond Head Cape on the east to Barbers Point on the west it is said that there is a row of reefs, and the breakers pound upon these so that a boat would be smashed to pieces at once. As this is the condition here it is perilous. However, along this front are four entrances, including the entrances to Honolulu and Pearl Harbor. Of course there is no reason to believe the enemy will leave these waterways open just as they are, and as mines and coast fortifications are already established the efforts at a landing here would certainly be useless. Perhaps Oahu Island may be said professionally to be naturally an impregnable fortress, and on such a place as the south shore it is said that for a time a thousand defenders could prevent capture by an army of 100,000 men in the attack. The present scheme of defense of the south shore is as follows: (Pearl Harbor is 9 miles west of Honolulu and has an area of 8 square miles and a depth of 60 feet within the harbor. While there is some question as to the general state of completion of the defense plans of the island of Oahu, it has been definitely decided to install two of the very latest model 16-inch guns in addition.)

Diamond Head sector:

- 2 14-inch guns.
- 2 6-inch guns.
- 8 12-inch mortars.
- 4 3-inch guns.
- Mine equipment and observation stations.

Honolulu and vicinity:

- 2 12-inch guns.
- Several mortars.

Forts at mouth of Pearl Harbor:

- 2 12-inch guns.
- 6 6-inch guns.
- 4 12-inch mortars.
- 4 3-inch guns.
- Mine equipment and observation stations.

However, what of the other landing points?

On the northeast side there is a range of mountains 3,000 feet high, not easily approached, and on the southwest side a range as high as 4,000 feet. Here again in effecting the landing, if we are opposed by a few pieces of field artillery on the few mountain roads, advance would be impossible. However, on the northwest side of the island for a space of 20 miles there are excellent landing places on a wide shoal, and in case an enemy lands on this side a mobile army of at least 40,000 men is necessary for its defense. Truly, from the point of view of the attacking force this is splendid, but the defender of course would not leave this entirely open and has prepared artillery emplacements on the shore.

In conclusion, when we consider a landing, it is unnecessary to explain whether there should be 100,000 men or 60,000 men or even 40,000 for the present defense of Hawaii, for a very large number of troops is required. It is proper to note first of all that a small force of only 10,000 men more or less is utterly insufficient for defense.

* * * * *

NETHERLANDS

NAVAL POLICY AND BUDGET FOR 1926

NOTE.—The following is a translation of the official statement of the minister of marine ad interim on submission of the estimates for the navy for the fiscal year 1926 and explanatory of the various items therein contained. In this statement the minister refers to the vessels under construction and proposed, and outlines the Government's policy for division of the navy into two organizations, that for the Indies to be under the jurisdiction of the minister for the colonies and that for Holland to be merged with the army into a department of national defense.

Session 1925-26—State budget for the fiscal year 1926

CHAPTER VI—NAVY

EXPLANATORY MEMORANDUM

The presentation of these estimates for approval of this chapter gives occasion to the undersigned to make the following explanations.

Reorganization of the administration of the Navy.—The Government is of opinion that the responsibility for the defense of the

Netherlands Indies in its entirety must rest with the Minister for the Colonies.

Owing to the acceptance of a limited destination for the Indies forces, the character of naval defense has become of a more local nature; for the more limited task which the navy has to fulfill in the defense of the Netherlands coast can, in the main, be accomplished with much simpler matériel than is necessary for service in the Netherlands East Indies.

It is true that in case of necessity, under certain circumstances, the sending of naval forces from the kingdom in Europe to parts elsewhere for reinforcement will not be entirely precluded, but it would not be logical to build up a system on something that, while not necessarily to be regarded as entirely precluded, yet as a rule does not exist.

The mutual support which formed the foundation for the present system, and upon which the objections connected with the present system were based, can thus no longer serve as a basis for the naval organization; and, consequently, the direction in which naval defense has developed of necessity leads to a navy for the Netherlands and another for the Netherlands Indies.

Hence, from all this, it follows that the greater part of the sea forces, that destined for the Indies, should be under the jurisdiction of the department for colonies; while that part destined for the homeland, which is of much smaller dimensions, may be administered by the department of national defense. The activities of the separate department of marine will, as this transition is carried into effect, gradually diminish and finally cease.

In regard to matériel, this organization has the advantage that each vessel has a fixed destination, either for the navy in Holland or for that in the Indies, which can be taken into account in all respects in the construction. If the present uniformity of the navy be maintained, it would be inevitably necessary to build several vessels for service in the Netherlands of a much more expensive type than is necessary for the task of defense here at home. In view of this, the proposed organization affords direct economy.

In respect to personnel, a definite division will soon be able to be effected for some categories of voluntary service men; and in respect to others, it will be necessary for the present to maintain connection between the personnel serving in the Indies and that here at home.

Several training stations will have to remain established in the Netherlands; and, moreover, use may be made of those training stations for the forming of personnel for the navy in the Netherlands.

This arrangement will have as a result that the strength of the personnel for the navy in the Netherlands may be smaller than is at present the case.

Organization and formation will be revised according to these principles, by which as ample a use as possible will be made of the reserve and conscript personnel. In connection with this proposed extension of the work of the naval conscripts in Holland, it may perhaps appear necessary to extend the first training period of a part of this category, in which case opportune proposals will be offered.

By bringing the navy and the army, both here at home and in the Indies, under a single administration we shall be able to effect an economy in expenditure in various ways.

The distribution of the costs for the navy over the home budget and over that for the Netherlands Indies, which for years has been awaiting a satisfactory solution, will be definitely settled.

In principle, each of the two parts of the kingdom will bear the expenses for its naval force. The Government, however, considers it necessary to make a contribution from the Netherlands Treasury in the costs of the navy for the Netherlands Indies, in view of the possibility that one or more Indies vessels may be used temporarily for the protection of Dutch interests apart from the Dutch Indies.

The solution of the difficult and comprehensive question concerning the gradual transition from the old to the new system will be taken vigorously in hand.

Hence it is necessary that the Minister of Marine ad interim be assisted by a director general, endowed with broad authority, who is thoroughly informed in naval matters of organization and technique and who will devote himself entirely to the working out of this comprehensive matter, which, so far as necessary, will have to be further regulated by law.

With a view to the foregoing, no funds will be requested as salary for a minister of marine, but such will be asked for a director general.

The office of secretary general will cease as soon as the director general enters upon his functions.

New construction.—H. M. S. *Java* was placed in commission May 19, 1925. Although it is hoped that the final account for this vessel will be ready before January 1, 1926, this can not be stated with certainty. In this connection, however, a sum has been inserted in these estimates.

It is expected that the trials of the cruiser *Sumatra* will take place in November, 1925. If these pass off with favorable results, it will still take about four months longer for her completion. The amount estimated for this vessel will serve for the payment of what

may appear necessary in 1926 and for the payment of the guarantee installment. Whether or not the final settlement can be made in 1926 is still an open question.

The expectation expressed in the explanatory memorandum accompanying the naval estimates for 1925, that the final settlement for the cruiser *Celebes* would occur in 1924, was not realized, because the commission of settlement, entrusted with the adjustment of that account, only completed its work while the memorandum in question was being drawn up. The receipt of the report of the commission gave to the undersigned's predecessor occasion to bring some further points to its attention, in consequence of which it was considered possible that its point of view might be modified. What the result of this may be can not, of course, at the present moment be foreseen. The undersigned, however, considers it undesirable at this stage to make further statements as to the content of the report of settlement. As soon, however, as anything definite can be said, the undersigned will not fail to inform the chamber fully in this matter. In view of the fact that there are here profound differences of opinion between parties to be bridged over, it is not impossible that even in 1925 the final settlement may not be reached. In connection with this an item has been inserted under article 16 of the naval estimates for 1926 for the cruiser *Celebes*.

The submarine *K-XI* and *K-XII* were commissioned March 24 and May 19, 1925, respectively. The trials of the *K-XIII* will probably take place in September of this year. If these result satisfactorily, three months more will be required for completion. The amount inserted will serve for the work remaining to be done on this submarine and also for what may be required in final settlement for the *K-XI*, *K-XII*, and *K-XIII*.

The submarine *O-9* and *O-11* will have their trials in the course of 1925. If these are successful, these boats will after completion be commissioned in the same year.

The *O-10* will probably likewise have its trials in 1925, but will only be completed in 1926. The amount inserted will serve for payment for work completed on the *O-10* and for payment of guarantee installments due on that boat and eventually also of those of the *O-9* and *O-11*.

For the two destroyers 1924, the flotilla craft, and the two destroyers 1925, amounts have been inserted for the work that will probably be completed in 1926. With the sum requested for the flotilla craft is also included that for the guarantee installments.

The above-mentioned amounts all have reference to vessels and craft already under construction and are required for their further completion. Not only, however, must vessels on the stocks be com-

pleted, but it is likewise necessary to request funds for the construction of new ships to replace those which are now or in the near future will no longer be serviceable. The Government also now considers it necessary for its safety to have a fleet, the main strength of which shall lie in a nucleus consisting of submarines, supported by cruisers and destroyers. As already repeatedly stated, the condition of the present East Indies destroyers is such that in any case the gradual replacing of them will have to be undertaken as soon as possible. With a view to this, a sum of 1,200,000 florins is now being requested as a first installment for the construction of two new destroyers.

The gradual replacing of the submarines in the East Indies is also necessary. H. M. submarine *K-I*, launched in 1913 and commissioned in 1914, is obsolete, while it may be assumed with certainty that when its substitute is ready (which can not be expected earlier than at the end of at least three years) several parts of H. M. S. *K-I* will have such defects that this vessel will no longer be fit for service. Measures to replace them may, therefore, no longer be deferred. A first installment of 700,000 florins for the construction of a submarine is, therefore, now being asked for.

The customary review of the sums inserted for new construction under the various articles of the estimates here follows.

For the continuation of construction of the *O-9*, *O-10*, and *O-11* for 1926 there is estimated as necessary:

| | Florins | Florins |
|------------------------|----------|----------|
| Construction----- | 350, 000 | |
| Torpedo equipment----- | 171, 600 | |
| | | 521, 600 |

which sum has to be borne by the State budget.

Further, there is requested for—

Cruisers Java and Sumatra:

| | | |
|-------------------|-------------|-------------|
| Construction----- | 1, 000, 000 | |
| Incidentals----- | 5, 000 | |
| | | 1, 005, 000 |

Submarines K-XI, K-XII, and K-XIII:

| | | |
|------------------------|----------|----------|
| Construction----- | 300, 000 | |
| Torpedo equipment----- | 262, 208 | |
| | | 562, 208 |

2 destroyers, 1924:

| | | |
|---|-------------|-------------|
| Construction----- | 1, 200, 000 | |
| Incidentals----- | 90, 000 | |
| Gyrocompasses----- | 20, 000 | |
| Wireless installation----- | 50, 000 | |
| Underwater signal system----- | 25, 000 | |
| Ordnance, including range finders and fire-control installation----- | 1, 275, 000 | |
| Torpedo outfits, including torpedo tubes and bomb throwers----- | 482, 198 | |
| | | 3, 142, 198 |

| | | |
|---|-------------|--------------|
| 2 flotilla craft: | Florins | Florins |
| Construction | 250, 000 | |
| Ordnance, including range finders and fire-control installation..... | 425, 000 | |
| | | 675, 000 |
| 2 destroyers, 1925: | | |
| Construction | 2, 000, 000 | |
| Incidentals..... | 90, 000 | |
| Gyrocompasses..... | 45, 000 | |
| Wireless installation..... | 45, 000 | |
| Underwater signal system..... | 45, 000 | |
| Ordnance, including range finders and fire-control installation | 1, 250, 000 | |
| Torpedo outfit, including torpedo tubes and bomb throwers..... | 355, 614 | |
| | | 3, 830, 614 |
| 2 destroyers 1926: | | |
| Construction..... | 1, 200, 000 | |
| Ordnance, including range finders and fire-control installation..... | 300, 000 | |
| | | 1, 500, 000 |
| 1 submarine destined for service in East Indies: | | |
| Construction..... | 700, 000 | |
| Ordnance..... | 200, 000 | |
| | | 900, 000 |
| Total..... | | 11, 615, 020 |

Of this amount, 5,807,510 florins is to be borne by the State budget, while a like sum is restored to the Netherlands from the budget for the Netherlands Indies.

The total costs for new construction, amounting to 12,136,620 florins, are included in the following budget articles:

| | |
|-----------------|--------------|
| | Florins |
| Article 15..... | 415, 000 |
| Article 16..... | 7, 000, 000 |
| Article 17..... | 3, 450, 000 |
| Article 18..... | 1, 271, 620 |
| | 12, 136, 620 |

Of these sums, reimbursement is made from the Indies budget to the Netherlands treasury as follows:

| | |
|-----------------|-------------|
| | Florins |
| Article 15..... | 207, 500 |
| Article 16..... | 3, 325, 000 |
| Article 17..... | 1, 725, 000 |
| Article 18..... | 550, 010 |
| | 5, 807, 510 |

So that there remains to be borne by the State budget :

| | Florins |
|-----------------|-------------|
| Article 15_____ | 207, 500 |
| Article 16_____ | 3, 675, 000 |
| Article 17_____ | 1, 725, 000 |
| Article 18_____ | 721, 610 |
| | <hr/> |
| | 6, 329, 110 |

As appears from the specifications occurring on page 3 of the explanatory memorandum to the naval estimates for 1925, the estimates for that fiscal year are :

| | Florins |
|---|--------------|
| Cost of naval construction_____ | 13, 655, 490 |
| Reimbursement from the East Indies funds_____ | 5, 216, 408 |
| | <hr/> |

And the amount remaining to be borne by the State budget— 8, 439, 082

Hence the estimates for 1926, compared with those for 1925, show a reduction in the amount of 2,109,972 florins.

Since the information contained in the explanatory memorandum on the budget for 1925, no more ships have been considered for elimination from the strength of the navy.

With reference to the personnel, the following measures have been taken :

In compliance with the desire expressed some time ago, the rating of “petty officer machinist” was adopted in place of “petty officer engine driver.”

The opportunity was extended for some categories of the personnel to take their families with them to the East Indies.

A new regulation was put into effect concerning medical treatment for the personnel of the navy, with new stipulations regarding specialist and hospital treatment for the families of the personnel.

A new salary schedule was introduced, effective January 1, 1925, for personnel outside of the tropics, and effective from June 1, 1925, for personnel within the tropics.

A new regulation concerning organized consultation for the personnel of the naval forces was laid down; further, a new regulation for the personnel of the royal naval reserve, and likewise a regulation for the training of midshipmen for the reserve.

The pension laws for the naval personnel, for their widows, and for the personnel of the royal naval reserve were revised.

Total.—The total of this chapter is estimated at an amount of 43,773,897 florins. (Note: of this amount 5,807,510 florins is to be borne by the first chapter of the estimates of expenditure for the Dutch East Indies.)

The total of Chapter VI of the State budget for the fiscal year 1925, as approved by the act of March 23, 1925—State Journal No. 98—amounts to 45,846,293 florins. (Note: Of this amount 5,216,408

florins is to be borne by the first chapter of the estimates of expenditure of the Dutch East Indies.) Hence, 2,072,396 florins less is estimated for 1926 than was approved for 1925.

The following sums, separated under the headings "Military expenditure" and "nonmilitary expenditure," were allowed for the fiscal year 1925 and are being asked for the fiscal year 1926:

| | 1925 | 1926 |
|------------------------------|--------------|--------------|
| Military expenditure----- | f.39,330,806 | f.37,378,092 |
| Nonmilitary expenditure----- | 6,455,487 | 6,335,805 |
| Unforeseen----- | 60,000 | 60,000 |
| | <hr/> | <hr/> |
| | 45,846,293 | 43,773,897 |

In explanation of the higher amounts which are being asked for in some articles of this chapter, reference is made to the information set forth in the detailed and explanatory statement attached to the estimate of costs.

(Explanatory note of translator: Expenditure under the heading "nonmilitary" has reference to pilotage, buoying, beaconing and lighting.)

NETHERLANDS

AVIATION NOTE

The organization of the military aviation of the Netherlands is much the same as that in the United States. Naval aviation is directly under the navy department and army aviation directly under the war department. Civil aviation is under the direction of public works.

There is no propaganda for a united air service in Holland. It is considered that such an organization would not be desirable because it would necessarily be a small department and the cost of overhead great; second, it is believed that each department should control its own activities.

The scheme of combining the army and "home navy" under a department of defence is progressing and will probably be put into effect during the present session of parliament. This will not entail any change in the administration of the aviation forces—simply a combination of the war and navy departments under a department of defence and each department administered by a director general.

In discussing this question with a Dutch air officer, it was found that his line of thought was much the same as the average American naval officer in regard to a united air service. He was not in favor of it because he believed that the requirements of the navy were peculiarly naval and could best be developed and administered by

the navy; that the average naval officer did not want to be separated from the navy, as they would lose contact with the service and would not be able to keep up professionally. This officer had just returned from a tour of duty in the East Indies, and his opinions were more or less formed as a result of his service in that locality. Service, of course, at home is of a very limited character.

POLAND

NAVAL ACTIVITIES—SUMMER, 1925

[From the German press]

The training ship for sailors of the navy and merchant marine left on a foreign cruise in June. The gunboats *General Haller* and *Kommandant Pilsudzki* visited Libau and Reval, which latter port, like other Baltic ports, was visited this summer by the warships of nine different countries. A number of torpedo boats visited Karlskrona. The midshipmen were detailed to these ships. The busiest of the Polish naval vessels is the transport steamer *Warta*, which makes regular trips to Cherbourg to bring French war material to Poland. Another transport steamer, *Wilja*, will soon assist with this work.

At present the side moles in the harbor of Gdingen are completed and serve as anchorage for naval vessels. Inspired by the success of the work there is a plan on foot to establish railroad connections between Gdingen and Bromberg which will serve principally for the transportation of coal from Upper Silesia (190 kilometers, single track, 3 years to construct). It is also planned to make Gdingen one of the large commercial harbors of Poland, ranking with Danzig in equipment. Two more harbor basins with a depth of 10 and 8 meters must be constructed.

As a result of extensive defalcations on the part of nine members of the navy, among them the chief of the Admiralty (Vice Admiral Porebski) and the chief of staff of the Admiralty, who were both dismissed, the present commander in chief of the fleet was appointed chief of the Admiralty and Lieut. Commadore Josef Unrug commander in chief of the fleet. A French naval commission consisting of six officers is charged with the training of the Polish Navy.

On July 20 the Polish torpedo-boat *Kaszub* (former German *V-108*) burst in two and sank as a result of a boiler or oil tank explosion. Three men were killed and six of the crew injured. The boat is now in Danzig undergoing repairs.

Purchase of submarines from France

It is reported that Poland has purchased the 12 submarines of the *Ariane* class (600/700 tons, 14/9.5 knots, 1.10, 1.7, 5 antiaircraft, 8 T. R.) which have been under construction at French shipbuilding yards since 1922. The ships are to be delivered next spring.

The Polish ammunition harbor basin on the Westerplatte near Danzig as well as the storage arsenal for ammunition and war material destined for Poland and shipped via Danzig will be finished in two months. The harbor basin has the form of a trapeze and is connected with the Weichsel by a canal 85 meters wide and 5 to 8 meters deep.

RUSSIA

SUMMER CRUISE OF BALTIC FLEET

[Source reliable]

Sof and Frunze were with the fleet throughout the cruise. Sof started out in command, got his ships tangled up, and turned over the command thereupon to the "Namorei" or principal technical naval officer (corresponds to chief of staff).

To prepare the fleet for sea there was great activity in the *Putiloff* and *Baltic* works for two months before the cruise, and every effort was made to get the ships in condition. This accounts for the fact that 8 submarines finally put to sea, rather than only the 3 or 4 that were supposed to be ready.

Ex-Imperial officers and specialists were recalled for service on this cruise.

UNITS:

Marat, Pariskaya Kommuna.

Rurik.

S. S. S. R. (*Aurora*). Developed engine trouble in Finland and returned.

7 destroyers, *Novik* and *Mark* type—

Zinoviev.

Stalin.

Lenin.

Trotsky.

Uritsky.

Garibaldi (ex-Orfei).

Poniat Tretsch Ezimuryeff (ex-?).

7 torpedo boats—

Uritsky (?).

Roshal.

Sibirski Strelck.

Likidi.

UNITS—Continued.

7 torpedo boats—Continued.

*Sladkoff.**Gelenmakoff.**Gaidamak.*

(The last four names are uncertain but the spelling is approximately correct.)

8 submarines—

*Kommissar.**Kommunar.**Krasnoflotetz.**Krasnoarmietz.**Batrak.**Bolshevik.**Rabotschi.**Proletarii.*

2 submarine bases—

*Orlitza.**Edmuna (?)*.

Exercises.—The cruise was intended to afford some combat practice as well as navigation practice. All of the fleet except the *Marat*, *Pariskaya Kommuna*, *Rurik*, and six destroyers were left at or near the Gulf of Finland entrance, and a detachment was directed to proceed to the vicinity of Gothland. The five principal units and accompanying destroyers went as far west as Kiel. On the return this squadron divided into two columns, at 10 to 15 miles distance, and simulated attacks on *Gothland* and *Odensholm*, which were for purposes of the maneuver protected by the submarines and torpedo boats that had already taken station there.

Itinerary.—Kiel, arrived June 23, 8 p. m., left June 24, 8 p. m. The morning of the 24th was spent in drill in embarking in small boats; a lecture by Frunze and others to the news on the cooperation to be expected in the future between the fleets of Russia and Communist Germany; meanwhile a few junior officers were ashore visiting shipping establishments; departure was scheduled for the 24th, morning, but repairs delayed leaving until evening. After Kiel the squadron sailed close to the Swedish shore, changed directions and approached the Polish coast, then in two columns (*Marat*, *Pariskaya Kommuna*, and *Rurik* and the destroyers) headed for the Gulf of Finland. Off Libau the British *Carysfort* and the accompanying destroyers were sighted by the *Marat* and *Pariskaya Kommuna*; no salute was given to the British, though the *Carysfort* indulged in a partial salute because of mistaking the Russians (23,000 tons) for the Dutch ships (5,000 tons) known to be in the Baltic. (The Russian report states that at this time, in a heavy sea, 75 per cent of the sailors on the battleships were sick!) At the entrance to the Gulf

of Finland the auxiliary detachments were picked up. The whole fleet reached Kronstadt at midnight of June 27-28.

NOTE.—The report that these ships visited Kiel June 23-24 is denied by the German Admiralty, who have stated that no Russian warships have visited Kiel. No such visit has at any time been mentioned in any German newspapers.

At the present time the Black Sea Fleet consists of 1 cruiser, 4 destroyers, 3 torpedo boats, 8 motor torpedo boats, 4 submarines, 4 small geodetic survey ships, and 7 transports.

The following changes have been made in the names of individual ships:

| Old name | New name |
|---|--------------------|
| Baltic Fleet: | |
| Armored cruiser <i>Svejetlana</i> ----- | <i>Prosintern.</i> |
| Destroyer <i>Prjamislav</i> ----- | <i>Kalinin.</i> |
| Black Sea Fleet: | |
| Destroyer <i>Korsu</i> ----- | <i>Petrovski.</i> |
| Destroyer <i>Lerkos</i> ----- | <i>Shaumjan.</i> |
| Destroyer <i>Bystry</i> ----- | <i>Frunse.</i> |

Work has begun on the new naval wireless stations according to Renngarten's plan. It is planned to erect stations at Cronstadt, Luga Bight, and Pleskau in the Baltic.

[From the German press]

The Russian Baltic Fleet, cruising along the coasts of Gotland and Sweden, went as far as Kiel Bay. Several units anchored in Marstall Bay on June 23, and were sighted off Aerö on June 24 on their return home. According to newspaper reports, the various units often lost contact owing to bad weather, and wireless connections with the home ports were often interrupted. En route from Helsingfors to Reval the English cruisers met Frunse (chief of Russian military forces) on board the line ship *Marat* with four destroyers, and apparently no salute was given. Maneuvers were held in the Gulf of Finland during July and August. The training ships *Aurora* and *Komcondany* left Leningrad the end of July for Archangel, stopping at the ports of Gotenburg and Drontheim en route.

The successful repairing and renovating of the ships, and the effort to increase the naval forces, has led to new efforts to renovate the line ships *Poltawa* and *Gangut*, inasmuch as the Russian ship-building industry is not yet in a position to construct new ships. Boiler tubes, double bottoms, and electric fittings must be almost entirely renewed, and large portions of the armament are also missing. The energy displayed by Soff, commander in chief of the fleet, during

the past year in connection with the enlarging of the fleet gives rise to the hope that the work on the ships will be carried so far that next year most of the ships of the Baltic Fleet can be again commissioned; that is, be able to navigate, fire, and show the flag, even though like most of the ships of the Baltic Fleet their speed will be greatly reduced.

A sea and a land plane are under construction in a Russian factory and will be equipped with the new soviet motor. It is understood the trial flight took place June 9. Russia recently delivered 20 Junkers fighting planes of Russian construction to Afghanistan.

SIAM

TRIALS OF "RATANAKOSINDR "

October, 1925

Referring to information given on pages 63-64, June, 1925, BULLETIN, concerning the new Siamese gunboat *Ratanakosindr*, the following notes from the British press in connection with the acceptance trials are of interest:

Ratanakosindr.—River gunboat; 175 feet over all and 160 feet B. P., by 36 feet 6 inches molded, by 14 feet 11¼ inches molded to upper deck; 10 feet 9 inches mean draft in normal condition. Built for the Siamese Government. The service for which the vessel is intended—river, estuary, and coast-line patrol—imposes limits upon the dimensions and displacement; but notwithstanding her small size a formidable combination of offensive and defensive qualities has been incorporated in the design without exceeding a normal displacement of 1,000 tons. The vessel has an armor belt of nickel steel and other protective plating and carries two 6-inch and four 3-inch guns. The propelling machinery, constructed by Messrs. R. & W. Hawthorn, Leslie & Co. (Ltd.), St. Peter's, Newcastle, consists of twin-screw vertical triple-expansion engines, capable of developing 850 initial horsepower collectively and designed to give a speed of 12 knots. The *Ratanakosindr* is the first war vessel launched from the Armstrong yard for a foreign power. The original contract was placed in 1913, and building was in progress when the outbreak of war caused operations to be suspended, the contract being canceled. A new contract was entered into in July, 1924. A 12-hour endurance trial was carried out on the 7th of August, the vessel attaining a mean speed of 10½ knots with the machinery developing 50 per cent of its designed power. On the 10th of August the vessel underwent satisfactory full-power steering, anchor, and gunnery trials. During six runs on the Admiralty



Siamese River Gunboat *Ratanakosindr*

measured course the designed speed was exceeded by 0.892 knots with the engines developing their designed power. No attempt was made to press the machinery, and it is probable that a speed of 13 knots could be obtained if desired. On the steering trials it was found that the boat could reverse her direction in the remarkably small space of three lengths, and that she possessed exceptional powers of maneuvering. During the gunnery trials two broadside salvos were fired in rapid succession, with an entire absence of damage to the structure or fittings. After the trials the vessel returned to the Tyne for her final docking and opening up before proceeding on her voyage to Bangkok.

SWEDEN

NAVAL ACTIVITIES

[From the Swedish press]

The first naval maneuvers held since 1913 took place on August 12 to 15 under the command of Vice Admiral Krusenstierna in the presence of the King. The war game assumed that the Swedish coast line from Trosa to Kalmar, including Gotland and the northern portion of Oeland was in danger of enemy landing. The forces were divided as follows:

| Blue | Red |
|------------------------|-------------------------------------|
| 6 armored vessels. | 2 line ships. |
| 1 armored cruiser. | 2 new small cruisers. |
| 1 mine ship. | 8 destroyer leaders. |
| 8 destroyers. | 4 destroyers. |
| 10 torpedo boats. | 2 large torpedo boats. |
| 2 motor torpedo boats. | 7 large submarines. |
| 6 guard boats. | 12 mine searchers. |
| 8 submarines. | 1 aircraft carrier with 5 flying |
| 13 motor boats. | boats. |
| 5 seaplanes. | 18 transport ships with 15,000 men. |
| 3 army planes. | 2 coaling ships. |

The initial position of the red forces was at Hudikswall, that of the blue in the Bra Bight. The maneuvers began at midnight of August 12-13.

Operations of the blue forces.—The main fleet remained in Bra Bight; light forces (destroyers and submarines) proceeded as far as Aland Sea as screen. Reconnaissance through scouting planes. The red submarines to the west and at Grässkär (near Hafringe) were sighted as well as an enemy mine field outside the Bra Bight. It was not assumed that the red forces would land on the strongly fortified mainland but on one of the islands, so the blue forces left

for an encounter with the enemy on the high sea. The commander in chief of the blue forces intended to attack the enemy line ships with the strongest division (*Sverige class*) and the transport fleet with the older division (*Dristigheten class*). He hoped to weaken the fighting power of the red forces (line ships) on the advance through the submarines and destroyers which had proceeded ahead. The main forces headed for Gotska Sandö and then turned to the north after passing the island.

The red fleet advanced to Gotland in spite of the submarine and torpedo-boat attacks (which were unsuccessful), and on the morning of August 14 were northeast of Sandhamn, while the transport ships were to the east of the main fleet. Blue scouting forces kept contact continually with the red fleet. At 6 o'clock in the afternoon the two forces came together. During the ensuing battle the blue fleet succeeded in gaining the mastery so that the commander in chief could withdraw a ship of the I division and send it to reinforce the II division. Maneuvers were broken off at this point; the red fleet was considered beaten and the landing prevented. Also two armored men-of-war of the blue fleet were considered out of commission. For the second part of the maneuvers it was assumed that after landing at Gotland the main red forces and the transport fleet would try to win the coast (represented by the line Landsort-Dagerort-Oesel). The initial position of the blue fleet was in Kappelhamm, that of the red in Färösund. The line Gotska Sandö-Gotland could only be passed by torpedo boats. In the night of August 14-15, a battle took place between the light forces only. Early on the morning of August 15 the main blue forces passed Gotska Sandö to the east and encountered the red fleet soon afterwards. In order to free itself from the enemy, the red fleet had to sacrifice a cruiser and a destroyer leader. This maneuver was also brought to a close at 8.45 a. m.

After the close of the maneuvers the I armored division and the I torpedo-boat flotilla had target practice north of the Danzig Bight. Artillery and torpedoes were used. The *Clas Flemming*, which practiced mine laying, lost a mine which could not be recovered. Motor torpedo boat No. 2 lost a 45-centimeter torpedo. At the end of August the following were put out of commission: *Drottning Victoria*, *Fylgia*, *Wachtmeister*, and *Wrangel*. At the end of August or the beginning of September the submarines *Illern*, *Uttern*, *Hajen*, and *Valrossen* were to leave for a five days' visit to Amsterdam. The inspector of submarines, Captain Gisiko, and two officers left for Holland in connection with the visit of the submarines in order to inspect submarine-building yards and optical factories. The visit was probably in connection with orders for the new submarine *Draken*.

At the beginning of November the *Fylgia* will leave for a foreign cruise in the Mediterranean and Black Seas.

The motor torpedo boat launched on June 5, 1925, by Thomycraft & Co., is called the *M-3*, it was put in service on July 16 and took part in the maneuvers. Its displacement when fully equipped is 12 tons, it is 16.8 meters long, and attained a speed of 41.4 knots during the trial trip in England. The two 12-cylinder motors of 375 horsepower each are in front, to starboard, and in the stern, to port. They execute a maximum of 1,650 revolutions per minute; 1 auxiliary motor of 2.5 horsepower serves for the operation of the main motors. This is operated from the commander's station. The armament consists of one machine gun and two torpedoes. The torpedo-launching tubes are located longitudinally in the boat. The torpedoes are fired with power charge which is ignited below the launching tube. The launching speed is about 20 knots. The torpedoes leave the boat toward the stern, and after striking the water take the direction of the boat. Immediately after launching the torpedo the boat changes course so that there is no danger of being struck by its own torpedo.

The new fire-control installations on the *Sverige* have proven satisfactory. It is intended to install the same plant on the *Gustav V* and the *Drottning Victoria*.

At the instigation of the chief of the Admiralty, not only the *Oden* but also another old coast armored vessel (*Wasa* or *Dristigheten*) will be converted into an airplane mother ship.

Proposed itinerary of cruiser "Fylgia"

This itinerary is subject to change inasmuch as the necessary permission has not yet been obtained from the governments concerned.

Karlskrona, October 28–November 2.
 Falmouth, November 9–11.
 Malta, November 23–27.
 Odessa, December 5–8.
 Galatz, December 10–13.
 Varna, December 15–18.
 Constantinople, December 20–23.
 Saloniki, December 26–29.
 Piraeus, December 31–January 3.
 Suda Bay, January 5–10.
 Alexandria, January 13–21.
 Tunis, January 27–February 1.
 Genoa, February 5–10.
 Barcelona, February 13–18.
 Canary Islands, February 26–March 7.
 Malmo, March 22–23.
 Karlskrona, March 26–31.

The department of commerce believes that calls should be made at Saloniki and Smyrna. This department has now given its views to the Government in regard to the proposed cruise of the ironclad cruiser *Fylgia* during its next long trip.

In view of the interests which the department of commerce has in the matter, the navy department has no objection to the proposal other than to meet the wish of the Swedish Export Association, which desires that the vessel should call at Saloniki and Smyrna in place of Suda Bay and Alexandria. With reference to the proposal from the Export Association that *Fylgia* should call at Valencia instead of Barcelona, the department can not alter the former plan, as Barcelona is of greater interest from a commercial point of view than Valencia. Besides, it might be doubtful whether it would be possible for the cruiser, under its eventual trip during the winter 1926-27, to call at Barcelona during the time for the electrical exposition there. Finally, the department of commerce feels that a report should be sent beforehand to the official Swedish representatives in the harbors which are to be called at so that preparations in connection with the visit may be made use of commercially. Other information about Sweden should also be given, especially in the local press. At the same time information regarding Swedish commercial conditions should be sent to the representatives.

As a result of the passage of the bill regarding the reduction of Sweden's army and navy, a call has been issued appealing to all those interested in the "defense of the realm" to join together in a national association for Sweden's defense. The purpose of this society will be to keep the people informed regarding the Swedish political situation, to further individual training, and to use every means to increase the fighting power of the country.

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME VIII—NUMBER 6

DECEMBER, 1925

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.



CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE

MONTHLY INFORMATION BULLETIN

VOL. VIII, NO. 6—DECEMBER, 1925

FOR CONVENIENCE IN ROUTING

| Officer | Initials | Date received | Date forwarded |
|------------------------------|----------|---------------|----------------|
| CAPTAIN..... | | | |
| EXECUTIVE OFFICER..... | | | |
| FIRST LIEUTENANT..... | | | |
| NAVIGATION OFFICER..... | | | |
| GUNNERY OFFICER..... | | | |
| COMMUNICATION OFFICER..... | | | |
| ENGINEER OFFICER..... | | | |
| MEDICAL OFFICER..... | | | |
| SUPPLY OFFICER..... | | | |
| FIRST DIVISION OFFICER..... | | | |
| SECOND DIVISION OFFICER..... | | | |
| THIRD DIVISION OFFICER..... | | | |
| FOURTH DIVISION OFFICER..... | | | |
| FIFTH DIVISION OFFICER..... | | | |
| MARINE OFFICER..... | | | |
| | | | |
| | | | |

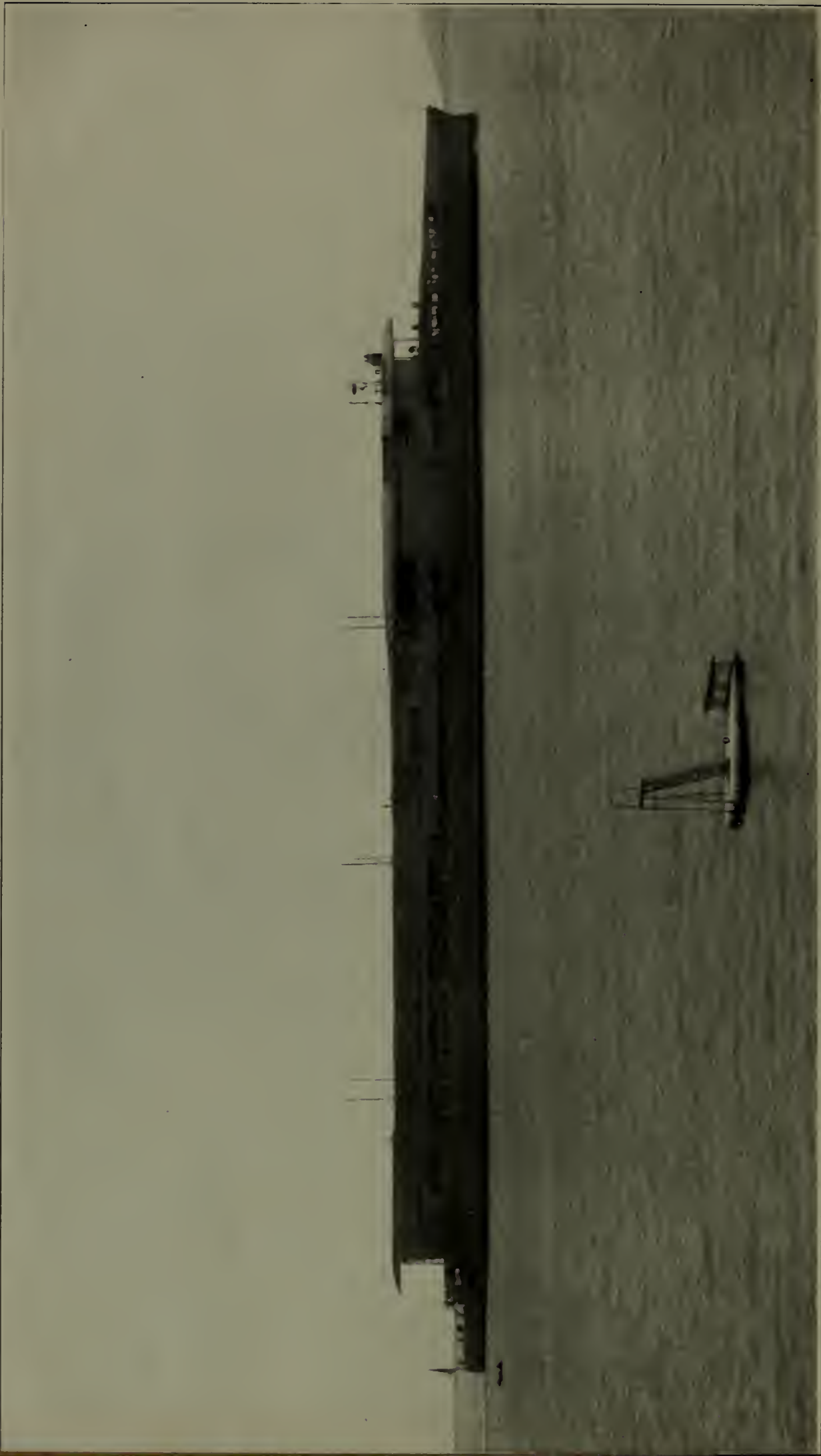
The material for the Bulletin is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

(III)

CONTENTS

| | Page |
|--|------|
| ARGENTINA : | |
| Ships of Argentine Navy----- | 1 |
| BRAZIL : | |
| Aviation notes----- | 2 |
| Political note----- | 3 |
| CHILE : | |
| Naval notes----- | 4 |
| FRANCE : | |
| Destroyer Sirocco launched----- | 5 |
| GERMANY : | |
| Activities of the German Navy----- | 5 |
| Unveiling of monument in Berlin----- | 7 |
| GREAT BRITAIN : | |
| Aircraft carrier Furious----- | 8 |
| Naval notes----- | 9 |
| The British-Turkish dispute over Mosul----- | 13 |
| ITALY : | |
| Description of new light cruisers----- | 16 |
| Miscellaneous notes----- | 18 |
| A visit to the works of Stabilimento Tecnico----- | 24 |
| JAPAN : | |
| Naval notes----- | 27 |
| NETHERLANDS : | |
| The works of N. V. Netherlands Instrument Co.----- | 32 |
| NORWAY : | |
| Summer maneuvers----- | 33 |
| RUSSIA : | |
| Soviet propaganda----- | 35 |
| SALVADOR : | |
| Reorganization of Army Air Service----- | 36 |
| SPAIN : | |
| Cruiser Admiral Cervera launched----- | 36 |
| Miscellaneous notes----- | 37 |
| SYRIA : | |
| Present conditions----- | 39 |
| TURKEY : | |
| Turkish navy----- | 46 |



H. M. S. FURIOUS

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. VIII

DECEMBER, 1925

No. 6

ARGENTINA

SHIPS OF ARGENTINE NAVY

November, 1925

The following list of ships in the Argentine Navy is taken from an official publication and indicates the state of the navy at present:

| Name and class of ship | Years in service | Displacement in tons | Horse-power | Actual speed in miles | Remarks |
|------------------------------------|------------------|----------------------|-------------|-----------------------|--|
| Armored cruisers: | | | | | |
| Rivadavia..... | 11 | 27,940 | 35,100 | 22.5 | Being repaired and modernized. |
| Moreno..... | 10 | 27,940 | 35,100 | 22.5 | Do. |
| G. San Martin..... | 27 | 6,840 | 13,000 | 17 | In service. |
| G. Belgrano..... | 27 | 6,840 | 13,000 | 17 | Do. |
| Pueryredon..... | 27 | 6,840 | 13,000 | 17 | Out of commission—in total repair. |
| Garibaldi..... | 28 | 6,840 | 13,000 | 16 | In service. |
| Cruisers: | | | | | |
| Buenos Aires..... | 30 | 4,780 | 17,000 | 21.5 | Do. |
| 9 de Julio..... | 33 | 3,540 | 14,300 | 19 | Out of commission. If unable to repair should be scrapped. |
| Coastguard: | | | | | |
| Libertad..... | 33 | 2,300 | 3,000 | 10 | In service. |
| Independencia..... | 32 | 2,300 | 3,000 | 10 | Out of service. In total repair. |
| Alm. Brown..... | 45 | 4,200 | 4,500 | 9 | School ship. Without military value. |
| Canoneros (river gunboats): | | | | | |
| Rosario..... | 16 | 1,055 | 1,600 | 13 | In service. |
| Parana..... | 16 | 1,055 | 1,600 | 13 | Do. |
| Torpedo boat destroyers: | | | | | |
| Catamarca..... | 13 | 950 | 28,000 | 30 | In total repair. Out of commission. |
| Cordoba..... | 13 | 950 | 28,000 | 30 | Do. |
| Jujuy..... | 13 | 950 | 28,000 | 30 | In service. |
| La Plata..... | 13 | 950 | 28,000 | 30 | Do. |
| Torpedo boats: | | | | | |
| Entre Rios..... | 29 | 340 | 4,000 | 22 | Do. |
| Corrientes..... | 29 | 340 | 4,000 | 22 | Do. |
| Misiones..... | 29 | 340 | 4,000 | 22 | Do. |
| School boat: P. Sarmiento..... | 27 | 2,850 | 2,025 | 9 | Still without value in service. Converted into transport. |

The two vessels purchased from the Lloyd-Chilean Steamship Line by the Argentine Navy recently for use as transports have arrived in Buenos Aires and have been named the *Chaco* and *Pampa*, respectively, replacing vessels of the same names recently deleted from the navy list.

It is understood that the Argentine Navy will certainly use a great part of the money it expects to have appropriated by the next Congress for the purpose of purchasing two or three light cruisers of about 6,000 tons each. Undoubtedly English and American firms will be requested to submit bids.

[From the Argentine press]

The Minister of Marine has decided definitely that the school ship *President Sarmiento* shall remain in Great Britain, where it is at present, in order to make general proposed repairs so as to insure the service of the boat for some years more.

Consequently, it will remain in the dockyard at Birkenhead, where it was constructed, and they will proceed with a general overhauling of the hull, engines, double bottoms, masts, etc., work which will probably last four or five months.

At any rate, the minister indicates that the boat will be ready in time to make its new voyage of instruction next year. As for the officers and men of the ship, the minister intends they shall return to this capital from Great Britain in a navy transport, probably the *Bahia Blanca*.

Aviation

Following information is taken from a letter received from the Ministry of Marine.

There are no actual squadron divisions of the naval aviation of Argentina, as they work in pilot formation, creating squadrons of temporary character, as the necessities of the service may require.

There are actually 19 planes in use on sea and 2 on land.

There are no planes capable of landing or taking off from aboard ship.

The planes are distributed in the different naval air bases of the country.

The authorized active force of the Argentine Naval Aviation is 600 men (chiefs, officers, and noncommissioned personnel): 30 are officers and chiefs.

There are 23 pilot officers and 6 subofficials.

There is no classification of observer, and conscripts are not trained for pilot work.

BRAZIL

AVIATION NOTES

November, 1925

Naval Aviation

The organization calls for a directoria aeroautica, or bureau of aeronautics, based on our system. Since the revolt of 1924 this has been superseded, and at present the general staff has charge of aviation. Plans eventually call for stations at Rio de Janeiro, Santos, Florianopolis, Rio Grande do Sul, and Recife, with a bombing squadron and fighting-plane squadron to be at each station.

Present equipment includes a main air base at Rio de Janeiro, already completed, except for sea-plane runway. There are two land-plane hangers and three sea-plane hangers, of cement with tile roofs, capable of housing 200 planes of various classes. There are also excellent quarters, shops, and administration buildings, with ample machinery to do major overhauling and repairs.

The field at present is small and sandy, with obstructions on two sides. The N-9 planes on hand were bought in 1919, and have been frequently overhauled and repaired. The other planes were bought in 1922 and have had little flying, but have deteriorated considerably. The planes on hand are:

- 3 N-9 seaplanes E1., 2 flying, 1 set up.
- 3 M-F flying boats C6, 2 flying, 1 set up.
- 12 F5L flying boats, Liberty-4, flying, 2 set up, 6 not assembled.
- 5 J-N land planes Ox5, 2 flying, 1 set up, 2 not assembled.
- 5 Avro land planes, British rotary, 1 flying, 3 set up, 1 not assembled.
- 10 Snipe land planes, Bennet rotary, 10 set up.
- 14 S-V-A land planes Ansaldo, 12 set up, 2 not assembled.

There are only about 25 pilots, with about 10 at Rio de Janeiro. A class of officers and 2 sailors are left. A new class should start in January, if any new planes are purchased. No bombing practices have been held in two or three years.

The stations at Santos and Florianopolis will be ready January 1, but will be much smaller than the station at Rio de Janeiro. Facilities for minor repairs only will be had at these stations, and only two hangars.

Army aviation

Has seven or eight wooden hangars at Rio de Janeiro. Fine big field with good approaches. Equipped for major repairs. Has Breguet training planes and some Nieuport. All war stock. No flying since 1922, because of revolution. Under French mission, who refuse to permit purchase of any material other than French.

There is an army aviation station at Santa Maria, in the State of Rio Grande do Sul, equipped with Breguets, but no flying is being done.

The State of Sao Paulo has a "Policia Flying Field" at Sao Paulo City, and at present has several JN with OXX motors.

The arguments used either for or against a "United air service" practically follows on the same lines of those found in the United States naval service.

BRAZIL

POLITICAL NOTE

October, 1925

[Source reliable]

There is no doubt that conditions are very unsettled in the interior of the State of Rio Grande do Sul and that President Borges de Medeiros will be forced to use all of his power to avoid a reoccur-

rence of the recent political upheavals. Were the power of the President less, the State would now be in the worst condition it has been during the last decade. But the power of the President was never greater and, on the surface, the month of September passed very quietly. The opposition to his rule, especially in the western part of the State, continues to gain strength but the political conditions of the State are such that armed opposition only would be effective and the discontented elements do not appear to be ready for a rupture with the President at this time.

The information regarding conditions in the interior has been obtained from commercial travelers who are connected with reliable firms in this city and may be a little overdrawn, but while this report was being written, an announcement was made that the rebel forces had crossed the Uruguayan frontier at Livramento and that all communications with that city have been cut off. A week previously the Government announced that some of the members of the crew of the *Sao Paulo* who had been interned in Uruguay since their revolt last year, had been captured by the Uruguayan authorities while trying to cross the frontier with a large quantity of munitions and other war material. With the exception of these activities on the Uruguayan border, no actual armed resistance to the President has been reported.

In the meantime, the State legislative assembly has not received the address of the President and organized for the coming session. The President will meet with no opposition in this legislature as all of its members were picked by him and duly elected by the people.

CHILE

NAVAL NOTES

Modernizing the Chilean Navy. Negotiations for British mission

The following is from the Argentine press:

Negotiations are already going on for sending a British naval mission to Chile, as the result of the Prince of Wales's desire to comply with ex-President Alessandri's request that British officers be sent to instruct and cooperate with the Chilean Navy.

It is understood that his royal highness is greatly interested in the mission, and that he conveyed the suggestion to the Admiralty heads before his return to London.

Immediately after arrival the prince is understood to have taken up the subject, and negotiations are now under way between the Admiralty and the Chilean chargé d'affaires in London.

As the negotiations are still in a preliminary stage, no arrangements have yet been made as regards the size and composition of the proposed mission,

but it will probably consist of skilled officers of all branches of the navy, particularly gunnery and squadron control. The length of its stay and other details will probably be arranged within the next few weeks to comply with the desires of the Chilean Government.

The Prince of Wales is being kept informed of the progress of the negotiations and is greatly interested in the selection of the personnel, which he is anxious shall consist of leading skilled officers of the British Navy.

Airplanes ordered by Chile from Swedish firm

The following is from the Argentine press:

COPENHAGEN, October 31.—The general manager of the firm Treishche Linham made the following declaration to the United Press:

"The Chilean Government has ordered the construction of nine planes, which will be begun in March of next year. The Swedish Government has authorized the exportation. The airplanes will be equipped with Junkers motors. The airplane industry is making negotiations with other countries for the sale of airplanes which will be equipped with three motors and apparatus for dropping bombs located between the steering wheels, and with a capacity of 12 persons. They can be used in the transfer of troops, and rapid-fire guns will be installed in the upper part as well as a rapid-fire gun of revolver type in the turret located in the center of the apparatus."

FRANCE

DESTROYER "SIROCCO" LAUNCHED

The 1,400-ton destroyer *Sirocco* was launched at the Grand-Quevilly yards October 15, 1925.

GERMANY

ACTIVITIES OF THE GERMAN NAVY

October, 1925

After the short period of rest following artillery practice, the regular annual autumn maneuvers of the naval forces took place at the beginning of September. These maneuvers took the forces to the North Sea. On September 9, the cruiser *Berlin* left for her winter practice cruise to South America. The *Ziethen* (engaged in protection of fisheries) while in the neighborhood of Bergen, received orders from the Chief of the Admiralty to fetch the scientific expedition of Doctor Grotewohl, which at the time in question was in Spitzbergen. They returned to Wilhelmshaven on September 4.

In the night of September 16-17, the torpedo boat *V-5* proceeding in formation with running lights on, was rammed by the Uruguayan

fish steamer *Hein Godenwind*. The boat was badly damaged amidships on the port side. One boiler room filled with water and a stoker was imprisoned in a side bunker; he was freed after an hour's time and had to be taken to the naval hospital in Wilhelmshaven. He was not seriously injured. The torpedo boat was sent to the navy yard in Wilhelmshaven for repair.

On September 17, in the afternoon, a water tube in a boiler on the torpedo boat *V-6* burst. The outpouring steam wounded one man of the crew seriously and two others were slightly injured. The first stoker (Velten) died subsequently.

The geodetic survey ship *Meteor* which is at present engaged in a scientific expedition in the waters of the southern Atlantic left Buenos Aires on June 3. On account of the illness and death of the head of the expedition, Professor Merz, the ship was obliged to return to Buenos Aires, leaving again on June 16 and arriving in Cape Town on July 15. During this entire period, the weather was bad and heavy southwest storms with a wind of 9-11 (according to the Beaufort scale) were encountered for several days. Several days later, on June 29, the barometer fell to 726 mm. and on July 1 the wind was blowing 9-12 (up to 40 m./sec.). The ship held its own admirably and the damage done by the storm was very slight. On July 3 the barometer rose to 772 mm. and the weather improved. Soundings were taken at Gough Island and many differences were found between the results obtained at this time, and existing records in the charts. The meteorological work was carried out by 44 pilot-balloon ascents and 5 captive balloons. The ship encountered great swarms of swordfish. The *Meteor* remained in Cape Town from the 15th to the 27th of July. This was the first visit of a German warship in these waters since the war. The reception accorded the officers and crew was very friendly. On August 27 the ship arrived at Florianopolis, Brazil, leaving there on September 1 for Buenos Aires, where it remained from August 8 to 17.

According to information received from the German Admiralty, the new light cruiser *Emden* has been completed and was placed in commission on October 15.

According to information received from the German Admiralty, the new large torpedo boat now under construction for the German Navy conforms to the regulations laid down by the treaty of Versailles.

The boat will be completed the end of May, 1926.

GERMANY

UNVEILING OF MONUMENT IN BERLIN—SPEECH OF GENERAL VON ARNIM

On Sunday, October 11, a monument to the dead of Queen Augusta's Guard, Grenadier Regiment No. 4, and its formation reserve infantry, Regiments No. 55 and No. 202, was unveiled in the garrison cemetery, Tempelhofer Feld, Berlin. All these regiments suffered frightful losses and destruction. No. 202 was made up largely of Berlin boys who were wiped out almost immediately after leaving the troop train at Ypres. The memorial service in the chapel took place in the presence of the Reichswehr, Prince Oscar and officers of the former army as well as former members of the regiments, members of the so-called "Fatherland" organizations, etc. General Sixt von Arnim made the following speech:

I have the great honor which His Majesty the Emperor and King intrusted to me, to dedicate this memorial to the Augusta Regiment and its Reserve Regiments 55 and 202. We are in spirit with the Emperor as he with us and remember him in respectful gratitude and unflinching loyalty. I greet Prince Oscar, the illustrious scion of the royal house, the representatives of the Reichswehr who we are confident are filled with the same spirit that inspired the old army, the officials, and above all the Oberbürgermeister of Coblenz, the former station of the Augusta Regiment. I greet further the officers and comrades of the Augusta Regiment and the Reserve Regiments 55 and 202 as well as the members thereof. We hold the fallen comrades in faithful memory but also wish to celebrate a reunion with the living. When we shake the hands of old comrades, the magic of tradition arises before our eyes. Tradition shall not only inspire us but must strengthen us for the present and the future, for the battle for the recovery of our people and the rebuilding of our fatherland. The first duty of us all is the fulfillment of our duty, true to the articles of war and the oath to the flag which we swore to His Majesty. Our youth must again be brought up in a spirit of discipline and moral culture and obedient to the authority of God, our people, and our fatherland. This day has a purpose only if it strengthens us and unites us to work and fight for the good of the fatherland.

The monument represents a fallen soldier with clenched fist, and bears an inscription, "An avenger will arise from our bones." A second inscription reads, "We died that Germany might live, so let us live in thee." During the speech a wreath was placed on the memorial bearing the inscription, "Your blood shall never be shed in vain."

The Montagpost (Left) was the only Berlin newspaper to report General von Arnim's speech. It also stated that President von Hindenburg was present at the services wearing the uniform of general field marshal and accompanied by his son and adjutant, Major von Hindenburg. The President's flag was not carried on his automobile.

The newspapers on the Right endeavored to minimize the episode, merely stating that the general (Von Arnim) had made appropriate remarks. The Republican papers attacked the address and some even criticised the monument. The Vorwaerts asked sarcastically if the Reichswehr and the Reichswehr minister were also true to the flag and the oath.

Echoes of the ceremony

A translation of a comment appearing in the Berlin Morgenpost of Thursday, October 15, 1925:

A charge of high treason has been filed against Gen. Sixt von Arnim (Ret.) by the Republican "Beschwerdestelle" Berlin, based on article 85 of the statutes. We are very anxious to know what attitude the court will take. In one instance, the latter went so far as to sentence Heinrich Wandt to six years' hard labor for having turned over an official document to a foreign official although the Minister of Foreign Affairs stated distinctly in writing that this document was not confidential.

The Reichswehrministerium has stated that the following regulations were presented to the directors of the various societies and associations taking part in the unveiling ceremony on Sunday, i. e., to General von Wriesberg (Ret.) as director of ceremonies:

(1) A guaranty that the ceremony would be dignified and unpolitical in character.

(2) That there would be no speeches against the present form of government.

(3) That no one's religious feelings would be hurt.

(4) That the director of ceremonies would take proper steps immediately in the event of any infringement of the above regulations.

The Reichswehrministerium has furthermore stated that the above regulations were duly signed, and that it has now instituted an investigation as to whether the fourth item was observed. Only the fourth? According to our opinion, the other three were also not observed, which follows as a matter of course. Or perhaps is it true that the marching of societies and associations carrying banners bearing the inscription "Für Kaiser und Reich" (for Emperor and country) is not a demonstration against the present form of government?

It is now reported from Munich that the Reichswehrministerium has forbidden the Government troops to pass in review before the former Bavarian Crown Prince Rupprecht. This regulation was put into effect and observed for the first time last Sunday at the ceremonies arranged by those holding the bravery medal. If this is true of the former Prince Rupprecht, is it not equally valid for the former Prussian princes, for instance, Prince Oscar, and for the other "representatives of His Majesty the Emperor and King"?

GREAT BRITAIN

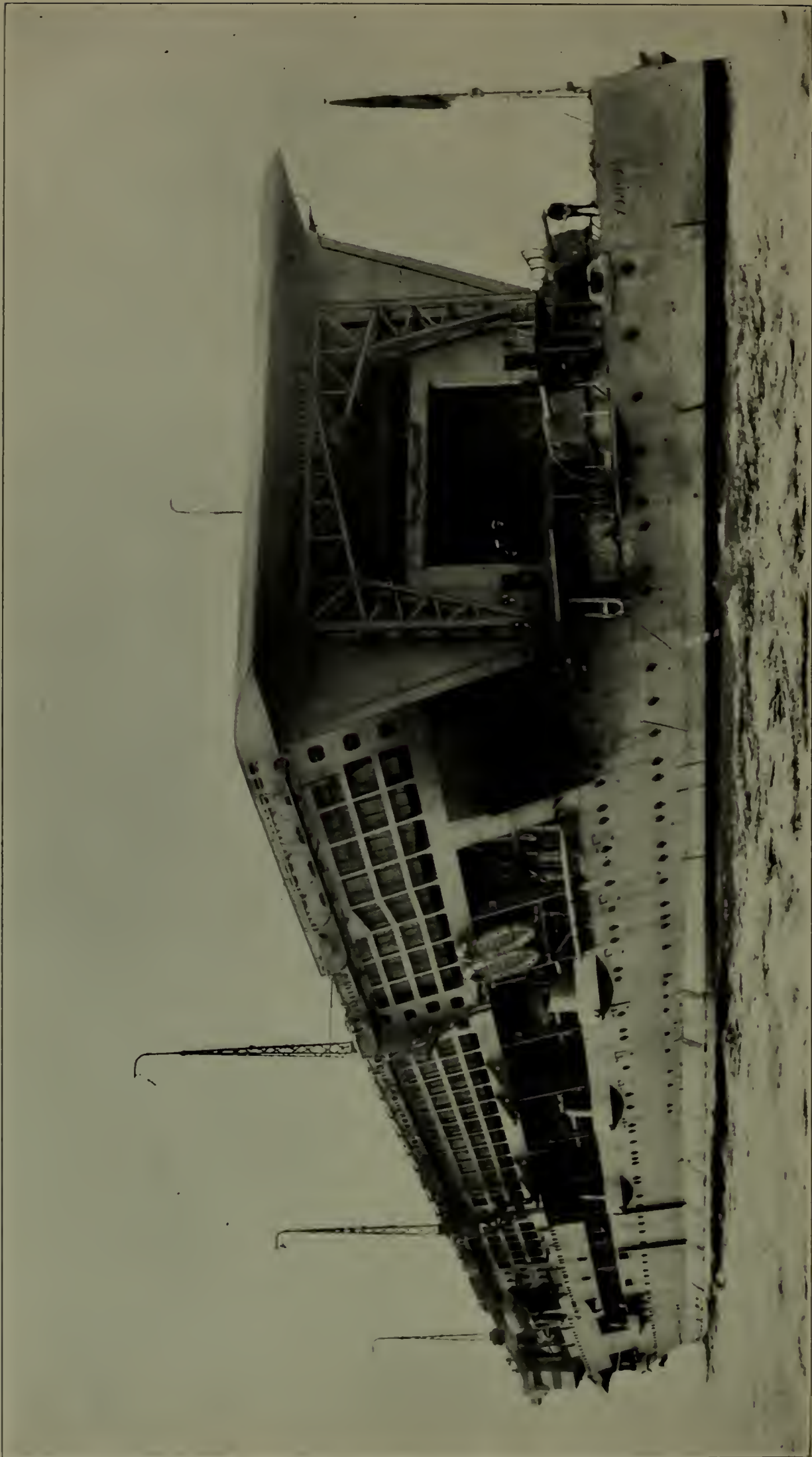
AIRCRAFT CARRIER "FURIOUS"

November, 1925

The frontispiece and accompanying illustrations are recent photographs of *Furious* after alteration to smoke-disposal arrangement.



BOW VIEW OF FURIOUS



QUARTER VIEW OF FURIOUS

It will be noted that the side of the ship in way of smoke pipes has been removed leaving frames and stiffeners.

The three masts on each side are believed to be for radio antennæ and hinged so that they may be turned down horizontally, in which position they will project at right angles to the center line.

[From the British press.]

Notes on British aircraft carriers

The Admiralty is taking care that no details of the work done on British aircraft carriers are published, but few subjects are being discussed more carefully in the fleet. The contracting powers to the Washington agreement are tightly bound as to aircraft carriers, but it is obvious that this type will be one of the most important in the navy in the future.

The fact that the *Argus* is being paid off at Chatham and that nearly £100,000 will be spent on her refit adds point to this discussion. This ugly ship, which was laid down as an Italian liner in 1914, has not been fitted with funnels, but the fumes from her boilers are carried through long horizontal smoke ducts opening right aft. Her bridge is fitted on a huge lift so that there is a clear flying-on deck over 550 feet long by nearly 70 feet wide. She has, however, the disadvantage that her speed is only 20 knots.

For service with the fleet this is not sufficient, for experience showed that aircraft carriers had to be at least 2 knots faster than the ships with which they were operating, but at the same time she is infinitely cheaper than a ship of the *Furious* type, and for experimental work and work in distant seas where the carriers do not have to cooperate with squadrons it is probable that she has most of the features that go to make the ideal carrier. Two of the criticisms that are leveled against her are that six 4-inch guns are not sufficient to protect a ship of her size, and that she carries no torpedo tubes.

GREAT BRITAIN

NAVAL NOTES

November, 1925

[From the British press]

Naval economy

In pursuance of their policy of economy the Admiralty has issued a list of intended reductions. Both before the war and since, the "K" class of submarines have been renowned for their ill luck and the calamities which have overtaken them. They were specially designed

to maneuver with the fleet in the North Sea, and for this reason they have the greatest speed of any in the navy. They are the only submarines to be propelled by steam when cruising on the surface, and are the largest in the navy. The complicated machinery and diving gear of the "K" class has made them exceedingly difficult to handle, and their under-water performance has always been extremely unsatisfactory. The most recent catastrophe was the sinking of the *K-5* with all hands in the western approaches of the channel on January 20, 1921. The *K-5* left Torbay with the Atlantic fleet, and when about 120 miles south west of the Scilly Isles she sank during diving operations. Six officers and 51 men were drowned. Although an inquiry was held immediately in the flagship, no clear explanation of the disaster was ever given. An earlier disaster was the sinking of the *K-13* during her acceptance trials, On that occasion half the crew was drowned.

K-26, which is to be retained, is an entirely new member of the class, with many improvements on the original design. It was constructed at the same time as some of the "L" class submarines which are to be introduced into the first destroyer flotilla. The "L" class has always proved a particularly satisfactory design, and has done good work. This is doubtless the reason for its retention.

The result of the Admiralty's decision will be to leave the navy perilously weak in submarines, and to make the necessity for the reconstruction of this kind of warship all the more urgent.

The list of economies follows:

SUBMARINES

All the "K" class submarines with the exception of *K-26* are to be scrapped, the first submarine flotilla being constructed with *K-26* and four "L" class submarines.

TENDERS TO HARBOR ESTABLISHMENTS

Reductions in the number of tenders attached to harbor training establishments at the home ports are to be effected as follows:

PORTSMOUTH

H. M. S. *Rob Roy* and H. M. S. *Sable* to be withdrawn from *Vernon*. H. M. S. *Derwent* and H. M. S. *Itchen* (trawlers) are also to be withdrawn from H. M. S. *Vernon* and placed on the sale list.

H. M. submarines *H-21* and *G-4* to be withdrawn from H. M. S. *Dolphin* and placed on the sale list.

H. M. monitor *M-33* to be withdrawn from H. M. S. *Vernon* and placed in reserve.

H. M. S. *Southdown* to be withdrawn from H. M. S. *Excellent* and sold.

DEVONPORT

H. M. S. *Wakeful* to be withdrawn from H. M. S. *Defiance*.

H. M. S. *Sturgeon* to be withdrawn from the R. N. College, Dartmouth, and to be replaced by H. M. S. *Forres* from the Boys' Training Establishment, without relief.

H. M. S. *Tenacious* to be withdrawn from the gunnery school and the duties undertaken by H. M. S. *Saumarez*, in addition to her present duties as tender to the Royal Naval Engineering College, Keyham. H. M. S. *Saumarez* will in future be tender to H. M. S. *Impregnable* instead of tender to H. M. S. *Vivid*.

H. M. S. *Flintshire* to be withdrawn from the gunnery school; the duties to be undertaken by H. M. S. *Tedworth*, in addition to her present duties. The disposal of H. M. S. *Flintshire* is under consideration.

H. M. S. *Iridescence* to be withdrawn from the Third Submarine Flotilla and sold.

NORE

H. M. S. *Tring* to be withdrawn from the Boys' Training Establishment at Shotley and placed in reserve. Only one emergency destroyer will be maintained at the Nore in future, H. M. S. *Stork* being regularly utilized as a second emergency destroyer in addition to her present duties as tender to the gunnery school.

SPECIAL RESERVE OF ENGINEER OFFICERS

The Special Reserve of Engineer Officers will be abolished and the Special Reserve of Royal Marine Officers to be reduced.

SECOND CRUISER SQUADRON

The second cruiser squadron will be reduced by H. M. S. *Calliope*, which will be placed in reserve, and one of the destroyer flotillas attached to the Atlantic Fleet will be reduced to reserve.

The complements of H. M. ships have been under consideration, and some reductions have been effected therein.

Changes in assignments of British battleships

The Admiralty announces that it has decided to reduce the four *Iron Duke* class battleships from full commission to a special complement, and to employ these ships in training boys at sea. Consequent on this decision the following redistribution of battleships will take place next spring.

From Atlantic Fleet to Mediterranean: *Resolution* and *Royal Oak*.

From Mediterranean to Atlantic Fleet: *Iron Duke*, *Marlborough*, *Emperor of India*, and *Benbow*.

The present rear admiral, Second Battle Squadron, will be transferred to the *Iron Duke*, and will take command of the Third Battle Squadron on its transfer to the Atlantic Fleet.

Submarine detector ratings

The following is quoted from Admiralty Fleet orders of October 16, 1925:

More volunteers can now be accepted for qualification as submarine detector, second class, to meet additional requirements.

The rates of pay of submarine detector ratings are as follows, and are payable in addition to S. T. or S. G. pay to men with that qualification:

| | |
|---------------------------------------|------------|
| Submarine detector, instructor----- | 1s. a day. |
| Submarine detector, first class----- | 6d. a day. |
| Submarine detector, second class----- | 3d. a day. |

2. Able seamen and leading seamen, not over 25 years of age, are eligible to apply, but preference will be given to seamen torpedomen. Other accepted candidates will be required to qualify later as seaman torpedoman. Ratings above leading seaman are not eligible as volunteers.

3. The qualification of seaman torpedoman will, from the date of this order, make submarine detector ratings eligible for the rank of gunner (T), provided they pass the necessary examinations, without passing through the intermediate grade of leading torpedoman.

4. Accordingly, commanding officers are to take special steps to draw the attention of seamen torpedomen serving under their command to the advantages of volunteering for submarine detector, second class.

5. Names of volunteers, together with copies of their service certificates, certificates of preliminary aural tests, and medical history sheets, should be sent to the antisubmarine school as directed on Form S. 1303 (A. F. O. 128/25). Only ratings in possession of first-class hearing will be accepted; volunteers will, therefore, undergo a preliminary aural test in their ships to insure that their hearing is not defective.

6. Men who qualify for submarine detector ratings will not be allowed to qualify for gunnery or higher torpedo ratings.

7. No volunteers from chief petty officer telegraphists or petty officer telegraphists are at present required.

Discovery of bank off coast of Africa near Capetown

Following is from the Argentine press:

CAPETOWN, AFRICA, October 28.—The German Navy ship *Meteor* which has been making graphical ocean studies in the South Atlantic has arrived in this port. The officers of the boat confirm their earlier information about the discovery of a bank 70 kilometers long situated some 1,110 miles to the south-southwest of this city.

Said bank was called by the discoverers "Banco Meteor." The depth at the deepest point was 3,520 meters and at the shallowest was 490 meters. The *Meteor* also discovered several smaller mountain chains, one of which was found near the coast of Africa and another next to the coast of South America. Said chains were situated across the channel of the submarine currents which run from north to south, which is explained by the fact that the warm currents of the tropical region do not continue to the antarctic regions as in the Northern Hemisphere where the warm currents of the Gulf of Mexico run almost to the pole.

GREAT BRITAIN

THE BRITISH-TURKISH DISPUTE OVER MOSUL

[Source M. 1. D.]

The Permanent Court of International Justice on November 21 delivered its findings regarding the dispute between Turkey and Great Britain over the Mosul area of Iraq (see map in article on Syria). Any hopes that the Council of the League of Nations might have had of dodging responsibility in the arbitration of the Mosul boundary for fear that either Turkey or Great Britain might be dissatisfied have been blasted by this decision.

The Hague ruled specifically and definitely that in the first place the decision of the council will be binding upon both parties and will constitute a definite determination of the Turkish-Irakian frontier; second, that the decision must be taken unanimously, with representatives of the interested parties present and voting, but their votes not being counted in ascertaining whether the decision is unanimous.

This sweeping decision would seem to make it almost imperative that the Council of the League of Nations at its December session delimit the frontier, and also that both Turkey and Great Britain accept the ruling.

Turkey now faces the necessity of accepting the boundary which the council will delimit or the alternative of flouting the authority of the League of Nations.

The question also arises as to whether the members of the league are obligated to support Great Britain, morally or actively, should she undertake to force the decision in case it is rejected by the Turks. Great Britain's firmness in resisting the Turkish claim to Mosul has given rise to a good deal of none too friendly comment at home and abroad. The British public has never taken very kindly to its commitments in Iraq and the Government's handling of the Mosul question has been severely criticized as a gratuitous challenge to the new Turkey. In other quarters it is suggested that what is behind the dissension is nothing more nor less than Great Britain's interest in the Mosul oil fields.

The dispute is of long standing. When Turkey entered the World War, Great Britain naturally took steps to protect her interests in the Persian Gulf, probably having at the outset no intention of going further, but the tide of war gradually swept her on to Bagdad and beyond. The eventual solution was that Iraq was placed under a British mandate until such time as it should be able to stand alone. The Turks have apparently reconciled themselves, at least temporarily, to the loss of Basra and Bagdad, but have persistently clung to Mosul. The Lausanne Peace Conference debated their claim at length but failed to dispose of it, and the treaty of Lausanne provided that if the frontier had not been fixed within another nine months by friendly agreement the dispute should be referred to the Council of the League of Nations. To the league it eventually went and, in the autumn of 1924, the council appointed the commission of inquiry which reported last July.

Although the commission at an early stage of its work was satisfied that the territory was legally Turkish, it became more and more convinced, as its work in Mosul proceeded, that the future welfare of the country demanded that this should not be the determining consideration. It unequivocally asserts in its report that "it is indisputable that Turkey retains her legal authority over the disputed territory as long as she does not renounce her rights." It also states that Iraq has neither a legal right nor a right of conquest over Mosul, but adds that Iraq is normally entitled to ask that, since it has been created, it should be given frontiers which will allow it to live, both politically and economically.

The commissioners' reasons for thinking that Turkey's legal right should not be the determining factor are of four kinds, strategic, geographic, economic, and administrative.

Strategically, it would be impossible to draw an effective boundary between Iraq and Turkey if Mosul were awarded to Turkey.

Geographically, Mosul is sharply separated from Turkey by high mountains. These mountains gradually slope down over plains to the desert which separates it from Syria. The geographical relationship between Iraq and Mosul is obvious.

Economically, Mosul has every affiliation with Iraq and almost none with Turkey. With Iraq and Syria the trade route connections are exceptionally easy. The high mountains make trading between Turkey and Mosul extremely difficult.

Administratively, the commissioners found that under a British mandate the country had become more peaceful and prosperous than under pre-war Turkish rule.

As far as the actual wishes of the population were concerned, the commissioners decided that probably the majority were in favor of remaining with Iraq if the British mandate were prolonged. If the

British factor were to be removed, the majority would prefer to return to Turkish rule rather than remain as part of a weak kingdom which would be a ready prey to Turkish aggression.

The presence of the British troops and airplanes has been a steady influence. If British forces were removed, the commission fears serious disturbances would result.

Besides British imperial forces, which passed on October 1, 1922, under the control of the air ministry, the defense forces of Iraq consist of the Iraq Army, which is in process of formation, and a levy force under British officers, financed by the British imperial exchequer. The British maintain eight squadrons of airplanes in Iraq. The total strength of these defense forces has been estimated as high as 16,000 officers and men. The British Mediterranean Fleet completed its maneuvers in the early autumn, and two British cruisers were reported to have passed through the straits on August 28; this being apparently unexplainable, unless it was done by way of counter demonstration of force to offset Turkish demonstrations in the Mosul region. There have been rumors of Turkish reinforcements being sent to the Mosul front, but it has been impossible to secure definite and reliable information on the subject. It has been known that all passenger circulation by rail has been forbidden in Turkey south of Eskishehr, and that it has also been forbidden to visit Cilicia (Mersina Adana, Bay of Alexandretta region) by rail or boat. Each side to the controversy has, of course, been trying to impress its opponent by a show of force. It is believed that the Turks have a force of some 60,000 officers and men at present on the Mosul front.

Now that the court has handed down its decision, it is admitted that the work of the league counsel will be extremely difficult. Reliable reports from Constantinople indicate the existence of persistent rumors to the effect that, if the decision finally arrived at is not accepted by the Turks, and they should invade Iraq, as they have threatened to do, the British fleet will immediately seize Constantinople and the Italian fleet will seize Smyrna and other near-by areas. However, it is possible that these rumors were officially inspired with the object of causing Turkey to consider well before taking any hostile action.

The ultimate solution may be a combination of all three plans proposed by the league's commission, whereunder Great Britain would agree to extend her mandate over Iraq for a few years and Turkey would receive as much territory in the Mosul area as could be given her without affecting the region strategically. While the Iraq mandate has never been popular in Great Britain, Iraq without British protection would fall an easy prey to Turkey, which would not fit in with British plans in Palestine and other regions thereabout.

All things considered, the possibility that the dispute over the Mosul boundary will precipitate a war between Turkey and Great Britain seems remote. The future may decide that the real significance of the Mosul question lies in the method used to effect a settlement rather than in the factors directly involved in the problem itself.

Should the League of Nations succeed in finding a solution of the problem, it will have done much more than deciding the fate of a near-eastern people, or settling a dispute between two leading powers. A just and acceptable settlement of this dispute must mean that the league and the court are real factors in the settlement of all those Old World problems which still remain as an aftermath of the war.

ITALY

DESCRIPTION OF NEW LIGHT CRUISERS

November, 1925

The following information on the new 10,000-ton light cruisers *Trento* (Orlando Works, Leghorn) and *Trieste* (Stabilimento Tecnico, Trieste), now under construction, is of interest.

General.—The cruiser is of the flush-deck type. There are three rather short center line smokestacks, two forward close to and abaft the foremast, and one aft forward of the mainmast. Turrets are on the center line, two forward of the foremast and two abaft the mainmast. Numbered from forward Nos. 2 and 3 are higher than Nos. 1 and 4. The secondary battery is mounted on the open deck, partly on the main and partly on the superstructure deck. A note on the plans indicates that this arrangement is only tentative.

Hull.—The hull is of rugged construction and decidedly flat bottomed. Maximum beam is at the water line. From No. 1 turret to the bow is a center-line bulkhead extending from main deck to keel. This same construction is found aft, broken only at the steering-engine room space and turret-handling rooms; aft this bulkhead begins at about the mainmast.

The double bottoms and wing compartments extend from the stern to a point a few feet forward of No. 1 turret. Wing compartments and most of the double-bottom compartments are to be used for stowage of fuel oil. Some of the double-bottom compartments will be used as reserve feed bottoms.

Machinery spaces are arranged in the following order, beginning forward:

No. 1 fireroom.

No. 2 fireroom.

Forward engine rooms.

Dynamo room.

No. 3 fireroom.

After engine rooms.

Fireroom and dynamo room have no center-line bulkheads. There are four engine rooms. The two forward rooms house the engines on the outboard shafts, the inboard engines are in the after engine rooms.

Masts.—Tripod construction. A fire-control station is installed on the foremast, also two 36-inch searchlights. The mainmast mounts two searchlights.

Fire control.—A 15-foot base range finder is mounted on the conning tower. In the hold at the base of the tube leading up to the conning tower is a large compartment without designating notes. I was informed that it was to be used in connection with fire and ship control. No range finders are mounted either in or on turrets.

Catapult.—One center-line catapult installed on superstructure deck. Turntable type. It is understood that it is a new invention with some sort of a gun for launching the plane. By scaling the print, the over-all length was found to be 12.80 meters. One plane is stowed on the catapult and one on deck.

Turrets.—Few details were available. It is evident, however, that they are not similar to ours. Plans showed a stool construction similar to our large caliber turrets and I was informed that the turrets revolved on rollers. Detail plans of the turrets were not available, consequently no further definite information could be obtained. Scaling the few plans available indicated an elevation of at least 35°. Forward turrets can be trained to 60° abaft the beam on either side; after turrets to 60° forward of the beam.

Torpedo Tubes.—The four twin-deck tubes are mounted on the deck below the weather deck, two on each side. The two forward are placed about amidships and the after two at a position abreast the mainmast. Large ports enable them to be pointed from 30° forward to 30° abaft the beam.

Boilers.—There are 12 boilers in all, 4 in each fireroom. They are of the express type, oil-burning, working pressure 267 pounds. Heating surface 13,000 square feet.

Engines.—There are four geared turbines. The total S. H. P. given in the specifications is 130,000, but work sheets in the manager's office give the total horsepower as 150,000. The shop manager, however, states that the final rating would be 160,000. Gear ratio, 10.5 to 1.

The following data was taken from the plans:

GENERAL INFORMATION

| | | |
|---|------------------|---------|
| Maximum length..... | meters..... | 193 |
| Length at water line..... | do..... | 189 |
| Beam, maximum..... | do..... | 20.50 |
| Mean draft..... | do..... | 5.77 |
| Height of main deck at midship section..... | do..... | 12 |
| Displacement, loaded: | | |
| Normal displacement on trial..... | metric tons..... | 11,000 |
| Full-load displacement..... | do..... | 12,670 |
| Coefficient of fineness..... | | .47 |
| Coefficient of fineness at midship section..... | | .855 |
| Coefficient of fineness, longitudinal..... | | .56 |
| Speed at trial displacement..... | knots..... | 34.50 |
| Speed, cruising..... | do..... | 25 |
| S. H. P. maximum, trial displacement..... | | 130,000 |
| S. H. P. at cruising speed, trial displacement..... | | 22,400 |
| Cruising radius at 34.50 knots..... | miles..... | 1,200 |
| Cruising radius at 25 knots..... | do..... | 2,000 |

BATTERY, ETC.

Eight 8-inch 50-caliber in four turrets.
 Twelve 4-inch 50-caliber, single mounts.
 37 mm. antiaircraft machine guns. Number of guns and type of mounting to be determined later.
 Four twin torpedo tubes, 24-inch.
 One center-line turntable catapult.
 Two combination reconnaissance and combat planes.
 Two paravanes.

PROTECTION

Millimeters

| | |
|---|----|
| Water-line belt throughout entire length..... | 70 |
| Main-deck thickness from No. 1 to No. 4 turret..... | 70 |
| Main-deck thickness forward of No. 1 turret..... | 25 |
| Main-deck abaft No. 4 turret..... | 25 |
| Turret sides, tops, and faceplate..... | 50 |
| Conning tower..... | 25 |
| Conning tower tube to central station..... | 25 |
| Turret ammunition hoists..... | 25 |
| Uptakes..... | 25 |

ITALY

MISCELLANEOUS NOTES

November, 1925

The command of the naval division in the Far East was abolished on October 16, 1925.

The *San Giorgio*, flagship of Rear Admiral of Division Conz, has left for Singapore. She was sent to China at the beginning

of the recent outbreaks, and she disembarked on June 2, 1925, the first naval detachment at Shanghai, after the riots of the preceding day. The landing force remained on shore until August 29. The other ships in the force were the light cruiser *Libia* and the gunboats *Caboto* and *Carlotto*.

In accordance with royal decree No. 1759, dated September 26, 1925, the tug *Lagosta* has been stricken from the list.

In accordance with royal decree No. 1780, dated October 8, 1925, the auxiliary ship *Castore* has been stricken from the list.

Aviation—List of the most satisfactory Italian airplanes of the various classes.

The particular Italian airplane (now in service or in production) which is considered to be best of its class, is as follows:

- (a) Pursuit, landplane, *CR-1*.
- (b) Observation, landplane, *A 300-4*.
- (c) Bombardment, landplane, *BR-4*.
- (d) Torpedo, seaplane, *M-24*.
- (e) Scouting, seaplane, *S-16. ter.*
- (f) Pursuit, seaplane, *M-7. ter.*
- (g) Spotting plane, landplane, *A 300-4*; seaplane, *S-16. ter.*
- (h) Large boat *M-24*, *S-55*, or *C NT-6*.

NOTE.—The Italians have not had sufficient tests of the three large boats mentioned to make a definite choice. The *M-24*'s are now being given service tests as the regular equipment of a service squadron. The other two types will be given service tests later.

New Italian aircraft (HTA) now on order or in process of design

The following reliable information concerning new Italian aircraft now on order or in process of design is furnished:

The Italian Air Service has on order the following pursuit landplanes:

| | |
|-------------------|-----|
| <i>CR-1</i> 's | 250 |
| <i>Dewoitines</i> | 150 |

Production of the *CR-1*'s has been held up because it was found necessary to modify the design of the tail planes. The modifications have been accepted and construction on these planes is now under way again.

Also construction on the *Dewoitines* has been considerably delayed, but is now progressing satisfactorily.

The air ministry has asked manufacturers to submit designs of a new pursuit land plane around a 400 horsepower engine, as the *CR-1's* and *Dewoitines* are not considered entirely satisfactory.

The air ministry has asked the principal seaplane builders, viz, Macchi, Savoia, Cantiere Navale Triestino, and Piaggio, to submit designs of a new pursuit seaplane to supersede the old *M-7 ter's* now in service. The designs are to be submitted early in November.

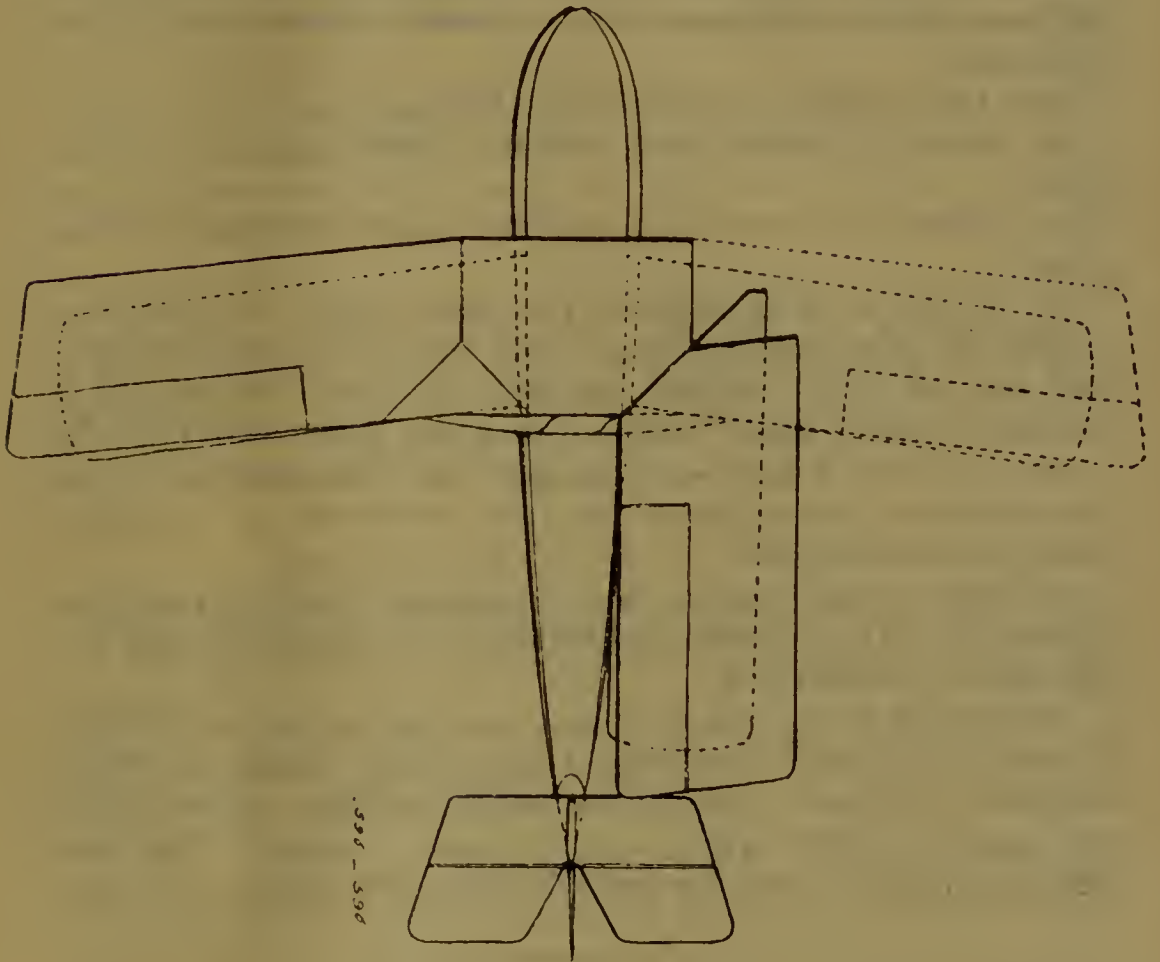
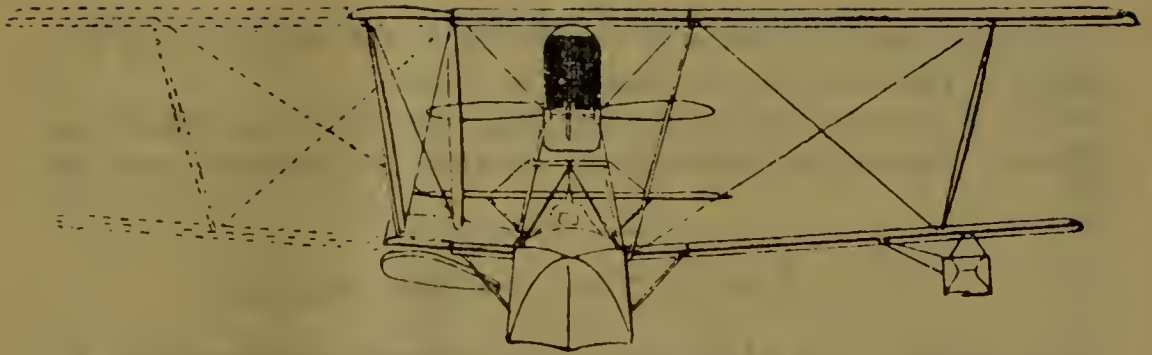
In view of the excellent results obtained with the *S-16 ter* seaplanes, this type will be adopted for observation and light bombardment to replace the *M-18* and *S-16 bis* types. Further tests will be conducted with the *M-24's*, the *S-55's* and the *CANT-6's* for the purpose of adopting a service type of heavy bombardment or torpedo seaplane. In this connection the *CANT-6* is now being modified to a two-engine, tandem arrangement (Lorraine-Dietrich) plane.

The heavy bombardment land plane *LB-4* has been modified to a two-engine, tandem installation. This modified plane, fitted with two Jupiter engines, is known as the *Ca-80*. The same plane, but fitted with two Lorraine 450-horsepower engines, is known as the *Ca-72*. The air ministry has ordered 9 *Ca-72's* from Caproni for service tests. The ministry is now negotiating with Caproni for an order of 50 of these planes fitted with two Issota-Fraschini "Asso" engines, 500 horsepower, to be known as *Ca-72 bis Eng*. Caproni states that the price offered by the ministry (225,000 lire per plane, without engines) is too low, and that he can not accept the order at a price under 300,000 lire per plane.

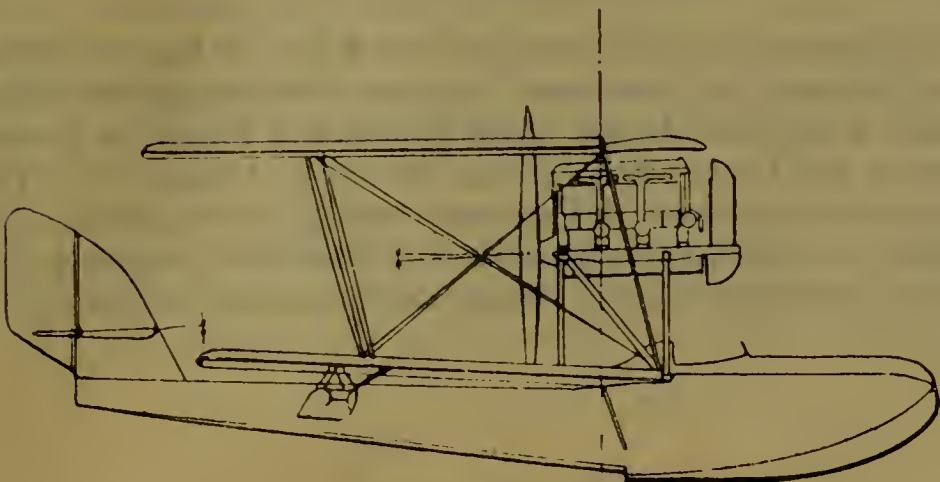
The attached three outline drawings (front, side, and top views) show the system of folding the wings on Macchi pursuit flying boats. This system has recently been developed and installed on a few of the planes for trial. The object of the folding wings is to facilitate stowage on board ships.

It will be noted that two additional struts have been installed on each wing in the folding-wing installation—one from the boat hull to the lower front spar and one interplane strut, both at the outer end of the nonfolding section of the wing.

In folding, the wing rotates about vertical pin pivots in the rear upper and lower spars. The front spars are rabbeted at the point of wedge and steel reinforced. To set the wing for flight it is swung into position and a steel pin is inserted vertically in each of the upper and lower points of junction of the front spars. These pins are secured in position by means of a locking key which goes through the pin near the bottom, and which is held in by a spring.



.596 - 596



Macchi pursuit flying boat

This seaplane is fitted with two hooks, in the longitudinal symmetry of the machine, for hoisting in or out.

The *Macchi-18*, observation seaplane, has also been fitted with folding wings of the same type as shown in the attached drawings.

"Cup of the Sea" race for sport seaplanes

The Italian "Cup of the Sea" race for small sport seaplanes was held at Naples October 28, over the circuit Naples-Posillipo-Torre del Greco-Naples, 28 kilometers to be covered 9 times, a total of 252 kilometers.

Only three machines participated in this race, viz:

(a) *Savoia 56* central boat seaplane, Anzani engine, 80 horsepower.

(b) *Savoia 56* central boat seaplane, Anzani engine, 80 horsepower.

(c) *Macchi 20* float seaplane, Lawrence engine, 55 horsepower.

None of these engines present any interesting characteristics; they are old types, designed and built in 1920. The *Macchi 20* won the "Coppa d'Italia" last year, as a land plane. For the "Cup of the Sea" race it had been equipped with floats and the original 45-horsepower Anzani engine had been substituted by a 55-horsepower Lawrence engine.

Elimination tests (maximum and minimum velocity) took place October 27. All machines passed these tests successfully and were admitted to the final race.

The *Macchi 20* won the final race, covering the 252 kilometers in 2 hours 16 minutes 21 seconds at an average velocity of 110.891 kilometers per hour. One of the *Savoia* seaplanes landed during the race, the pilot having misunderstood a signal. The other *Savoia* machine covered the course in 2 hours 20 minutes 15 seconds.

Japanese airplanes visit Rome

The Japanese aviators Hiroshi Abe and Kazihiko Kawachi, flying the two *Breguet XIX* machines (Lorraine-Dietrich engines) which they have flown from Japan, across Siberia and Europe to London, arrived at the Centocelle airdrome, Rome, on October 27. They were received by General Prandoni, acting for the Italian Air Ministry, the Japanese ambassador and the entire Japanese staff, and a large number of other officials and prominent people.

The itinerary of the flight from Tokyo to Paris was as follows:

| | Kilometers |
|--|------------|
| July 25, Tokyo-Osaka----- | 450 |
| July 27, Osaka-Tatchiarai----- | 520 |
| July 28, Tatchiarai-Heidjo----- | 850 |
| Aug. 2, Heidjo-Karbin----- | 900 |
| Aug. 3, Karbin-Tchita----- | 1, 350 |
| Aug. 7, Tchita-Vernchoudinsk----- | 250 |
| Aug. 8, Vernchoudinsk-Irkutsk----- | 450 |
| Aug. 10, Irkutsk-Krasnojarsk----- | 1, 350 |
| Aug. 13, Krasnojarsk-Atchinsk----- | 650 |
| Aug. 15, Atchinsk-Novonikolaiewsk----- | 500 |
| Aug. 16, Novonikolaiewsk-Kurgan----- | 1, 180 |
| Aug. 20, Kurgan-Kazan----- | 1, 200 |
| Aug. 23, Kazan-Moscou----- | 750 |
| Sept. 15, Moscou-Koenigsberg----- | 1, 250 |
| Sept. 17, Koenigsberg-Berlin----- | 1, 150 |
| Sept. 20, Berlin-Strassburg----- | 500 |
| Sept. 22, Strassburg-Paris----- | 500 |
| Total kilometers----- | 13, 800 |

From Paris they flew to London, and thence to Rome, stopping at Paris and at Lyons en route. It is their intention to fly these planes back to Japan. The route of the return flight is not known at present.

Notes on naval dockyard at Pola, Istria

The work of dismantling the shops of the naval dockyard at Pola and crating machinery for shipment to Taranto and Spezia still continues.

There is a movement on foot to lease these fine buildings to commercial firms. It is understood that the Ford Motor Co. is an applicant.

A recent royal decree combines the naval districts of the upper and lower Adriatic into the district of the Ionian and the Adriatic. This will place the administration of Pola under Taranto.

From the point of view of naval utility, Pola will degenerate from a great arsenal to a locus for service schools. Already, the motor machinists' school and the yeomans' school are located there, with about 600 enlisted men in attendance, and it is expected that the machinists' school and the gunnery school will also be located at Pola. The commandant stated that he expected to have about 2,000 enlisted men under instruction when the four schools are going.

The present schools were inspected. They are well organized, apparently well run, well kept, and exceedingly clean, except the heads. The students swing in hammocks on three-tier standees,

which would seem unnecessary congestion where the outstanding feature appears to be unused space.

There were two American marine engines in the motor machinists' school, one Standard and one Sterling.

The present commandant is Rear Admiral of Division Massimiliano Lovatelli, who was the Italian naval attaché at Washington after the war.

ITALY

A VISIT TO THE WORKS OF STABILIMENTO TECNICO

General

The Stabilimento Tecnico is the largest ship and engine building plant in Trieste and, through interlocking directorates, the largest in Italy, by close association with the following institutions:

Lloyd Triestine Steamship Co.

Cosulich Steamship Co.

Cantiere Naval Triestino at Monfalcone.

Cantiere San Rocco at Trieste.

Arsenale del Lloyd Triestino at Trieste.

Cantiere Scoglio Olive at Pola.

Shops

Foundry.—Manufactures cast iron, brass and bronze. Present output of cast iron is at rate of 160,000 tons per annum. Sufficient orders are on hand with work starting January 1, 1926, to require an output of 400,000 tons per annum for two years. Two new buildings are under construction and as soon as completed old buildings will be increased in size. New furnaces now being installed are of 40 tons capacity.

Brass foundry is small but of sufficient capacity to suit varying requirements.

Pattern shop.—Cramped. New building practically completed will double capacity. Patterns are made of white pine.

Machine shops.—Machinery installed is apparently in perfect condition, scrupulously clean, and well lubricated. New building under construction will double the capacity.

Particular attention is paid to stowage of machined parts. Helter-skelter stowage about the floor of shops and in our Government plants is not in evidence. Everything is in perfect order. A piece which has been partly or fully completed is so stowed that it is not in contact with another piece of work. As an example of the care taken, a large number of connecting rods were stored with the

crank end down, resting on soft-pine boards. Piles of gears were stowed one gear on top of another, with soft-pine boards placed between gears. All machined surfaces are well oiled and are inspected daily and reoiled if required.

Workmen are required to machine to dimensions. There were noticeably very few men filing and scraping. The shop manager stated that even with the highest grade of machine work in Diesel engine manufacture, necessity for grinding, filing, and scraping is evidence of inexpertness of the design department.

Erecting and testing shop.—In this shop, engines are erected and tested. At present under manufacture are 4 steam turbines for the light cruiser *Trieste*; 4 steam turbines for 2 destroyers; Diesel engines, 4 and 6 cylinder, for 13 cargo vessels.

A new shop 100 feet long, 100 feet wide, and 50 feet high is practically completed. It was made necessary on account of orders on the books upon which work commences January 1, 1926. These orders require the construction of 104 six-cylinder Diesel engines in the calendar year 1926.

The standard tests for Diesel engines are as follows:

1. One 24-hour full-speed test for new design.
2. One 48-hour full-speed test for new design.
3. One 24-hour 10 per cent overload test for new design.

Where more than one unit of a new design is manufactured, the remainder are given test No. 1 only unless otherwise specified.

Gear-cutting shop.—Two gear-cutting machines of German make are installed. The older one is no longer capable of keeping up with the required output, therefore a new one has been installed for the sole purpose of cutting Diesel gears and reduction gears for turbines. The weight of the installation is 150 tons. The foundation is built on piling supporting a concrete foundation 4 feet thick. Upon this the steel supporting structure 16 feet high is erected in a basement beneath the shop floor. This construction provides air space beneath the machine which is considered necessary for the purpose of maintaining an even temperature.

After a gear has been roughed out new cutters are installed and the finishing cut is taken. During this operation the machine runs continuously, and an even temperature is maintained in the shop. The shop manager stated that as a result of a visit he made to American plants manufacturing Diesel engines he was of the opinion that American-built units were inferior because of—

(a) Insufficient study of design problems by designing force. Plans are rushed out of the drafting room, with the result that shop work can not be performed properly.

(b) No attention is paid to gear cutting in the matter of temperature. Gear-cutting machines are in large, open shops with other machines with consequent large fluctuation in temperature.

(c) Incomplete state of drawings requires a great amount of filing, scraping, honing, and grinding, which destroys interchangeability and leads to poor fits. He thought that the American idea of good workmanship is centered on the bench, whereas the German and Austrian idea places more reliance on accuracy of machine work, which naturally requires perfect drawings.

(d) Design departments of American institutions lack properly qualified supervisors and designing engineers.

The shop managers pointed to the fixed charges of the machine shops of 4.35 per cent as compared with 45.2 per cent in the design department of the works as evidence of the perfection of designs and details.

Shop personnel.—All machinists are required to wear clean blue dungarees. Supervisory force corresponding to leading-men and quartermen in our naval shops, wear khaki suits and blue cap with visor. An insignia on the cap indicates the specialty. For example a first-class supervisor of engine work, corresponding to our quartermen has a gilt propeller within a gilt circle. He is a graduate engineer and must have a degree in mechanical engineering from a recognized institution of engineering. A second-class supervisor will have the insignia without the circle. He may be a graduate engineer, or an expert machinist without a degree, but in the latter case he can go no farther. The shop superintendent wears civilians.

In the foundry and pattern shop the same scheme of uniform for the supervisory force prevails. In the former all other men are permitted to wear clothing of any kind, but pattern makers must wear clean blue dungarees.

With the exception of transportation from shop to shop, one is impressed by the quiet efficiency of the organization. Very few supervisors were in evidence, yet there were no visible indications of loafing.

Drafting room.—For the size of the plant the number of men employed seemed large in comparison with our own institutions. I was impressed with the size of the supervisory force and upon inquiry found that supervisors are the actual designers. They are charged with the following work:

- (a) Project design.
- (b) Design computations of major order.
- (c) Supervise work of detail draftsmen.
- (d) Prescribe material to be used.

(e) Check every detail while design of the detail is in progress, and after completion.

(f) Develop standards; revise existing standards.

After detail drawings are completed, supervisors check them for arrangement, notes and bill of material after which they are turned over to the checking force who merely check the dimensions, notes, etc., by comparison with the penciled drawing previously checked by the supervisor. The supervisory force, or designing engineers is about one-fifth the size of the drafting force.

JAPAN

NAVAL NOTES

October, 1925

Operations of combined fleet, July 10–August 8

[Source reliable]

The details of the operations of the combined fleet between July 10 and August 8, 1925, have been obtained as follows:

July 10. Night attack by First Submarine Squadron against First Division First Fleet and Fifth Division Second Fleet being under way during the attack.

July 11. Night attack First Submarine Squadron against Fourth Battleship Division and Fifth Cruiser Division, battleships and cruisers being under way during the attack.

July 12. Night attack against *Mutsu* by Thirteenth Destroyer Division, the *Mutsu* being under way during the attack; night attack against cruiser *Sandai* by the First and Fourth Destroyer Divisions.

July 13. Night torpedo practice by Second Destroyer Squadron; night attack by Fifteenth Destroyer Division, the target being the *Yamashiro*; night attack by First and Fourth Destroyer Divisions using the *Isuzu* as the target.

July 14. Day action between *Kirishima* and *Kinu*, *Oi*, *Abukuma*.

July 15–16. Tactical exercises with the combined fleet in Saiki Bay, Kyushu.

July 16–17. (a) Day tactical action between first and second fleet. (b) Day individual torpedo practice by destroyer squadrons; division torpedo practice by the Fourth and Sixteenth Destroyer Divisions. (c) Simulated night action between the *Sendai* and *Natori*; individual night battle practice by capital ships.

July 18–25. Day individual battle practices, individual torpedo practices, submarines and destroyers.

July 25–28. Conference of officers concerning exercise and practiques by chief naval general staff and chief of staff of each fleet.

July 28–August 3. Shore landing operations; artillery fire on shore, using ship's field pieces; practice landing medium-calibre guns on shore, three guns from each fleet, and witnessed by delegations from all ships.

August 4. Tactical evolutions by the combined fleet.

August 5. Division battle practice, light cruisers.

August 6. Conference on tactics on board *Mutsu*.

During the cruise of the combined fleet from August 13 to September 15 the following exercises will be held: Mine sweeping and mine laying by the *Tokura* and mine sweepers Nos. 1, 2, 3, and 4; fueling at sea from the *Shiriyu*; laying smoke screens; antiair practices; scouting problems and various tactical exercises.

Notoro to be converted into an aircraft carrier?

[From the Japanese press]

The expenditure for the construction of a third aircraft carrier is to be included in the ¥320,000,000, representing the total cost of the second auxiliary craft replacement plan which the naval authorities have drawn up as an undertaking to be completed in five years from the next fiscal year.

As Japan under the Washington treaty is entitled to a total tonnage of 81,000 tons and as the *Kaga* and *Akagi* are of 27,000 tons each, she can build another aircraft carrier of the same tonnage.

At present Japan has two aircraft tenders, the *Hosho* and the *Wakamiya*, but these two vessels being found insufficient to meet the needs of necessary training it has been decided to convert the special service ship *Notoro* (15,400 tons) into an aircraft carrier. The *Notoro* was transferred from the Kure Naval Station to the jurisdiction of the Sasebo Naval Station as a preliminary step to conversion. She left Kure for Sasebo on October 14.

NOTE.—The Japanese Navy Department when asked to confirm the conversion of the *Notoro* stated that the press report was wrong, but it is believed that some such plan is contemplated.

To decommission 19 ships

The navy has decided to place out of commission 19 ships as follows:

Cruisers, *Chikuma*, *Chitose*.

Gunboats, *Yodo*, *Mogami*.

Third-class destroyers, 15.

These ships are classed as obsolete by the Japanese Navy and their decommissioning will not affect the efficiency of the navy. The reason for the navy department's action is attributed to the replacement program now under consideration.

Destroyer "No. 25" launched

Destroyer No. 25 (1,445 tons) was launched at the Ishikawajima dockyards, Tokyo, on October 15, 1925.

Cruiser Itsukushima sold

The cruiser *Itsukushima* which has until recently been used as quarters for the personnel of the submarine school at Kure was sold by tender on October 8, 1925, at the Kure Naval Station.

The successful bidder was the Iino Trading Co., for 134,440 yen.

Japan's China fleet

When the reorganization of the Japanese fleet takes place on December 1, 1925, the ships to be attached to the Japanese-China Squadron, in addition to the nine gunboats already stationed there, will be as follows:

Cruisers *Hirato* and *Tone*.

Destroyers, Fourteenth Destroyer Division (*Kawakaze*, *Tanikaze*, *Kiku*, *Aoi*).

Twenty-seventh Destroyer Division (*Hishi*, *Sumire*, *Warabi*, *Ashi*).

The squadron commander will be an officer of the rank of vice admiral instead of rear admiral as heretofore.

In case the civil war in China becomes more serious the *Hirato* and the Fifteenth Destroyer Division will be ordered to China before the new organization of the fleet goes into effect in December.

Despatching pigeons from a submerged submarine

An experiment to discharge pigeons from a submerged submarine was made in Kure Harbor. The experiment was successful.

The pigeon was placed in a vacuum tube with an automatic time-opening device and shot out of the torpedo tube. It took 2 minutes 8 seconds for the tube to reach the surface of the water, the tube opened automatically releasing the pigeon therein which returned to the submarine school. The pigeon was none the worse for its confinement.

Official trials of submarines to be conducted by shipyard employees

Heretofore when submarines were built at a private shipyard the official trials were conducted by the navy equipment officers before being turned over to the navy.

With the sinking of submarine *No. 70* during trials, the question of responsibility for the disaster arose between the builders, Kawasaki Dockyard Co., and the navy, resulting in the decision of both the Mitsubishi Dockyard Co. and the Kawasaki Dockyard Co. to use their own employees for the trials of submarines and for

this purpose they have employed retired naval officers Capt. T. Aoki at Kawasaki and Capt. M. Kawano at Mitsubishi.

Submarines *RO-64* and *RO-68*, built by the Mitsubishi dockyard, have both undergone their official trials, including submersion, discharging of torpedoes, etc., using the company's employees for this purpose and the result was very satisfactory.

RO-64 has already been delivered to the navy, *RO-68* will be turned over to the navy by the end of this month.

Japanese Navy studying disposition of old ships

The naval replacement program has informally been shown to the finance department but its formal presentation will not take place until about the middle of October, at which time the cabinet will have completed looking over the other Government department budgets.

The navy is already making plans as to the disposition of the old ships when they are replaced. They think a second limitation conference is certain to be held at an early date, and when the ratio of the noncapital ships to be allotted each country is discussed the strength of noncapital ships possessed at the time of the conference will have an important bearing in determining the ratio of noncapital ships that will be allowed. For this reason they wish to use as much of the tonnage of the old ships as possible in order to come out to their advantage.

To accomplish this the navy is planning to put out of commission the third-class destroyers now used as mine sweepers and to replace these by 16 destroyers of the *Sakura* class (600 tons). Also for the same reason they may put out of commission four ships of the *Hirato* type and retain the six ships of the *Asama* type in order to keep the tonnage of the noncapital ships as high as possible.

Large airplane hangar to be erected at Kure

The Japanese Navy Department is contemplating the construction of a large airplane hangar at Kure Naval Station. The plans which have been submitted to the bureau of naval stores are for a hangar which can be taken down and stowed away when not required.

One of the officers connected with the station is quoted as follows: "As naval ships visit this port constantly and Hiro Naval Aviation Station being located near by, it is but natural that we should have airplane hangar to house planes which are to be supplied to the fleet. However, ordinary hangars will not do; a large hangar is required for this purpose."

The hangar to be constructed will cover 600 tsubo of ground and will be built of steel frames covered with galvanized-iron sheets.

In addition to the hangar, the largest military store depot in the Orient is being built in Kure. It consists of five buildings. This will be completed by March, 1926.

One-year volunteers to be accepted for the navy medical and pharmacist corps

On account of the shortage of officers in the navy medical corps, the Japanese Navy has decided to adopt the one-year volunteer system in the medical and pharmacist corps.

Graduates of medical colleges and universities will be accepted for one year, will be given the rank of ensign and lieutenant (junior grade), respectively, upon entering the service. They will be given three months' training at the naval medical school, and for the remaining nine months will be assigned to the fleet or to shore stations.

NOTE.—Some papers report length of service two years.

Searchlight at Kasumigaura destroyed by fire

A powerful searchlight (60,000 candlepower Sperry type, made in United States) was destroyed by fire on October 27, 1925, at Kasumigaura while preparations were being made for its use to assist in a night flight to Sendai. The automobile truck attached to it was also destroyed.

The fire is said to have been caused by leakage of current from the magneto. The loss is estimated at 100,000 yen.

Naval aviation bureau to be established

The Japanese Navy Department has decided to create an aviation bureau from the next fiscal year (April 1, 1926), and the sum of 200,000 yen covering this item will be placed in next year's budget.

The naval aviation bureau will be divided into four sections to be known as follows:

Administrative section.

Plans section.

Material section.

Flight section.

The chief of the bureau will be an officer of the rank of vice admiral, while the chiefs of the sections will be officers of the rank of rear admiral or senior captain. A paymaster of the rank of captain will also be attached to the bureau.

Revision of regulation covering additional pay for aviation duty

The following is the translation of an item on the above subject which appeared in the Official Japanese Gazette :

Imperial Ordinance No. 279 dated August 20, 1920, is revised to read as follows :

1. Army and navy officers, enlisted men, employees, and others engaged in aviation duty or engaged in aviation training on board airplanes shall receive additional compensation as shown by the list below. Detailed instruction regarding this pay shall be made by the respective minister.

2. The above applies equally to army and navy officers, enlisted men, employees, and others who are engaged in aviation duty on board airplanes, other than military planes, but the nature of the duty being for military purposes.

3. Army and navy officers, enlisted men, employees, and others who engage in aviation duty or in aviation training in foreign countries or in schools may receive the same additional compensation mentioned in paragraph 1.

| | Monthly amount Yen |
|---|--------------------------|
| Officers, special officers, high civil officials, not exceeding----- | 60 |
| Midshipmen, warrant officers, civil officials (Hannin rank, first class), not exceeding ----- | 40 |
| Petty officers, civil officials (Hannin rank, second class and below), not exceeding----- | 30 |
| Men, not exceeding----- | 20 |

NOTE.—1. The above amounts may be further increased by an amount not exceeding 50 per cent to those engaged in flying in new type planes or in dangerous aviation experiments.

NETHERLANDS

THE WORKS OF N. V. NETHERLANDS INSTRUMENT CO.

A visit was recently made to the above plant at Venlo, Holland. This company was organized about four years ago. The director of the company, Franz Kaumanns, was for 25 years the representative of the Zeiss Co. in Holland. Because of the restriction placed on the Zeiss Co. as a result of the peace treaty, this company was formed and the Zeiss patents said to have been sold to them, the Zeiss Co. receiving a royalty on all production. The output consists of binoculars, rangefinders, submarine periscopes, directorscopes, range clocks, gun sights, bomb sights, and similar instruments.

This company is now delivering periscopes to Denmark, Spain, Turkey, and Japan. There were six periscopes ready on one order for delivery to Japan, and the superintendent stated that they had delivered about 100 periscopes to Japan during the past four years.

The character of work turned out appears to be of a very high order. All the leading men are Germans brought over from the Zeiss plant.

The antiaircraft fire-control instrument described on pages 12-16, May, 1925, BULLETIN, was seen and closely examined. The descrip-

tion contained in the above-mentioned article is complete, so no further details are given here. It is stated that the original instrument cost about 40,000 florins to manufacture.

An improved antiaircraft fire-control instrument is now under construction with which the Dutch Government is going to hold a firing test sometime before the end of the year.

There are about 135 men now employed at the factory. The production heads at the plant are ex-German naval officers.

It is believed that the company is in the need of money and very anxious to sell any of its instruments to the United States Government.

NORWAY

SUMMER MANEUVERS

[From the Norwegian press]

This year the naval maneuvers managed by Commander Gade with Captain Ackim as flag captain, took place between Stavanger and Arendal. On Monday, August 10; Commander Gade hoisted his flag on board the ironclad *Tordenskjold* in the Mastra-Fiord and already on this very day some preliminary maneuvers were carried out while the great maneuvers did not start before Tuesday, August 11.

The maneuvers had been divided into two periods, the first of which was carried into effect on Tuesday and Wednesday, the second one on Friday.

The squadron was divided into two parts—the “attack” under the command of Commander Captain Scott-Hanson was, during the first period, composed of the ironclad *Tordenskjold*, the torpedo boats *Trygg*, *Stegg* and *Snögg* and one flying machine, while during the second period only the ironclad *Tordenskjold* belonged to the “attack.” The “defense” under the command of Commander Captain Beutlich, was composed, during the first period, of steamship *Fröya*, the submarines *B-1*, *B-2*, and *A-3* as well as three flying machines, while during the second period steamship *Fröya*, three torpedo boats, three submarines, and five airplanes belonged to the “defense.”

During the first period, the assailants represented an enemy party who, by employing force, wanted to make a reconnoissance which was to be followed by an attack on and the destruction of the unfortified harbor of Mastra-Fiord with all the floating materials there.

The “defense” had to prevent the enemy vessels from entering the harbor and to defeat the enemy with the help of airplanes, submarines, and mines.

The maneuvers were very interesting and instructive. The vessels being the newest and best ones of the navy, were supplied with

all of the latest inventions made after the World War, and this has been the first time that the navy could make all of the new weapons cooperate at a time. Anchored underwater mines were laid in front of the harbor, diving shells for the attack of submarines were thrown down both from airplanes and torpedo boats, mine-tug as well as artificial smoke and fog were employed. Everything worked in a satisfactory way and the "defense" solved its problem very well.

One could really feel uneasy when seeing the effect our plunging mines have. Huge quantities of water were slung high up into the air, although the mines burst very deep in the water. It's no wonder then that during the World War the submarines were so much afraid of this weapon.

If at all anything can be more interesting than this first period was, the second one would be.

The "defense" had the task of bringing in to Stavanger a convoy expected to come from the western side. The convoy was represented by steamship *Venus* of the England route and she was to arrive at Stavanger at 10 o'clock.

The assailants were to prevent the convoy from sailing into the harbor.

In order to cover the convoy it was necessary to sail far out, and as there was bad weather on that day this was no easy task for the small vessels of the "defense," submarines and torpedo boats. But they performed their task although some time the success seemed to be rather dubious. Already at 4 o'clock in the afternoon, an enemy cruiser which was near the entering route of the convoy, was sunk by a submarine. At about 6 o'clock in the afternoon, however, another cruiser showed up in the course of the convoy and both submarines and torpedo boats were ordered to go on to the attack, but they had no success. When about 7 or 8 o'clock S. S. *Venus* showed up on the horizon, the situation became precarious as the enemy cruiser was now sailing between the convoy and the defenders. Because of the nightfall the submarines could not come to the attack and on the other hand it was still too light for an attack of the torpedo boats. The only possibility that could prove successful then was to develop artificial fog between S. S. *Venus* and the enemy cruiser. Therefore, the torpedo boats were ordered to advance and realize this plan and they really carried it out in an excellent way. The S. S. *Venus* came behind the fog and the cruiser fearing a torpedo attack, had to retreat.

The people on board the *Venus* watched all of these proceedings wondering, not knowing at all that S. S. *Venus* had all the time been the center of these proceedings.

In the next week, the squadron will sail to the south and the "war" will be continued along the coast up to Arendal.

RUSSIA

SOVIET PROPAGANDA

October, 1925

[From a confidential news agency]

The budget of the Komintern for 1925-26 (in gold roubles)

From a very well informed source we have received the following estimate of the expenses of the Komintern for next year. It is believed in Berlin that the table below is authentic but there is of course always a considerable difference between the estimates and the actual expenditure.

| Expenditure | 1924-25 | 1925-26 | Net increase |
|---|-----------|-----------|--------------|
| Ordinary expenses..... | 1,750,000 | 1,783,000 | 32,407 |
| Extraordinary expenses..... | 3,664,600 | 5,673,000 | 2,008,400 |
| Supplementary extraordinary expenses..... | 87,000 | 366,000 | 279,000 |
| Gold roubles..... | 5,501,600 | 7,822,000 | 2,319,807 |

The propaganda funds are contained in the "Extraordinary expenses." The details are:

| | 1924-25 | 1925-26 |
|--|---------------------|---------------------|
| I. At the disposal of the different sections of the executive committee of the communal international: | <i>Gold roubles</i> | <i>Gold roubles</i> |
| (1) Anglo-American section..... | 75,000 | 98,000 |
| (2) Balkan..... | 260,000 | 455,000 |
| (3) French-Italian..... | 65,000 | 95,000 |
| (4) Polish..... | 30,000 | 30,000 |
| (5) Baltic section (Finland, Letland, Litauen, Estland)..... | ----- | 80,000 |
| (6) Sections of the Far, Middle, and Near East..... | 112,000 | 587,000 |
| (7) German, Austrian, Czechoslovakian, Belgian, Danish, Swiss, Spanish, and Portuguese section..... | ----- | 450,000 |
| (8) Scandinavian section..... | 45,000 | 45,000 |
| | 587,000 | 1,840,000 |
| II. Financial department: | | |
| Central committee of the eastern countries— | | |
| (1) Category..... | 386,000 | 380,000 |
| (2) Category..... | 350,000 | 340,000 |
| | 736,000 | 720,000 |
| III. At the disposal of the president for purposes beyond the ordinary organization: | | |
| (1) For promoting new units in foreign countries..... | 400,000 | 300,000 |
| (2) Extraordinary subsidies for strike committees..... | 275,000 | 275,000 |
| (3) For foreign propaganda organizations..... | 360,000 | 300,000 |
| (4) For equipment of the "proletarian centenaries" and other fighting units..... | 575,000 | 650,000 |
| | 1,610,000 | 1,525,000 |

SALVADOR

REORGANIZATION OF ARMY AIR SERVICE

November, 1925

[From the Salvadorean press]

The Salvadorean Military Air Service was recently reorganized under authority of an executive decree which reads as follows:

* * * Considering that it is necessary to establish a table of organization of the "Salvadorean aviation," and to establish with these pilots and mechanics who are at present in the school, a military course for the purpose of forming in the near future the special organization: Therefore * * * decrees:

ARTICLE 1. The organization of the Salvadorean aviation corps will be as follows:

Chief, engineer, with the rank of colonel or brigadier general.

First assistant chief, with the rank of major or colonel.

Second assistant chief, commanding officer of the military detachment of the aviation field, with the rank of captain.

A warehouse keeper, with the functions of assistant to the first and second assistant chiefs, with the rank of lieutenant or sublieutenant.

A doctor.

A paymaster.

Fifteen pilots.

One chief mechanic.

Five mechanics.

One clerk.

Two chauffeurs.

One nurse.

Six orderlies and an infantry detachment composed of 1 second sergeant, 2 corporals, and 12 privates.

ART. 2. The pilots must be Salvadoreans; and in order to complete the organization of the corps they will go through a course in military aviation.

ART. 3. The chief of the "Salvadorean aviation" will present to the Ministry of War, as soon as possible, the plan of studies and regulations, which should govern the military aviation course, as well as special regulations for the corps and the bases for the formation of the organization above mentioned, subject to the principles of the military promotion law.

ART. 4. The Government decree of June 27, 1923, which regulates the course in another manner, is hereby revoked.

SPAIN

CRUISER "ADMIRAL CERVERA" LAUNCHED

October, 1925

[From a consular report]

At the Spanish Government shipyards at Ferrol, Province of Corunna, a new cruiser named the *Admiral Cervera* was launched on October 16, 1925.

The following brief description of the ship has been taken from the Spanish press.

Today took place the launching at Ferrol of the new cruiser called the *Admiral Cervera*.

The total length of the vessel is 176.63 meters, the maximum beam 16.61 meters. The displacement is approximately 7,976 tons.

The maximum speed should be 33 knots for which the engines will deliver 80,000 horsepower. The cruising radius will be 1,200 miles.

The armour of the *Admiral Cervera* consists of a band of high-tension steel of 50 millimeters thickness around the engines and boilers, mounted over a belt of the same kind of steel of 25 millimeters thickness.

The coming tower is protected by steel to the thickness of 150 millimeters and is connected with the station of command by a passageway of steel of the same thickness.

The cruiser carries 8 guns of 152 millimeters (6 inches) and 50 caliber, mounted in pairs except those in the bow and stern, which are single.

Four antiaircraft guns of 101.6 millimeters, two of 47 millimeters for salutes, and one machine gun are also carried. There are also four groups of torpedo tubes mounted three to each group.

The officers and crew number 560 men. Ample accommodations are provided fore and aft for both officers and men. In the forecabin there is a large recreation room for the use of the crew.

The electric energy is furnished by means of three dynamos situated in the fore part of the ship. These function at a tension of 100 volts. The ship is electrically lighted throughout.

As has been stated before, the machinery is capable of delivering 80,000 horsepower operating four shafts driven by steam turbines turning at 350 revolutions per minute.

Steam is generated by eight boilers. Fuel oil is used for fuel.

SPAIN

MISCELLANEOUS NOTES

November, 1925

Purchase of airplanes for Italy

In view of the urgent need by Spain for seaplanes in Morocco, and the delay in the delivery of *S-55* bombardment planes, the Savoia Co. has delivered six *S-16 Ter.* observation and light bombardment seaplanes to Spain.

On page 39, August, 1925, BULLETIN, it was stated that Spain had ordered six *M-24* and six *S-55* seaplanes from the Macchi and the Savoia Co.s, respectively. The *M-24*'s were delivered by air in May, but the *S-55*'s have not yet been constructed.

It has now been learned from a source believed to be reliable that as Spain is in urgent need of aircraft in the Moroccan operations an agreement was reached with the Savoia Co. for the immediate

delivery of six *S-16 Ter.* observation and light bombardment sea-planes. It is understood that these planes have already been delivered.

Recent contracts for torpedoes

[Source: M. I. D.]

A contract was recently let for the construction of 150 Fiume Whitehead torpedoes, at Fiume, Italy, as follows:

One hundred 21-inch diameter, 7½ meters long, for use by surface craft. Contract just signed.

Fifty 21-inch diameter, 6½ meters long, for submarines. Contract signed about two months ago.

Spain has on hand only five torpedoes, which are of the Bliss type. All the tubes now installed are for the Bliss torpedoes: these will have to be changed, as will those on the submarines now building: this will probably delay the delivery of the submarines for a year or more. Surface ships can go into commission without the tubes, but this will not be possible for the submarines unless the space provided for the tubes is "blanked" off.

Reasons for change.—It is understood that the reason Spain abandoned the Bliss torpedo is because the Bliss Co. could not give them the latest models, as the United States Navy controls some of the new improvements on the Bliss torpedo and would not consent to these improvements being used in torpedoes manufactured for a foreign country.

The Fabrica Nacional Torpedero (F. N. T.) at Cartagena was established about 10 years ago, but has never accomplished any tangible results. Commander Garcia-Diaz has been in charge if it: he spent some time working with the Bliss people in the United States. Lack of central authority and a multiplicity of boards are given as some of the reasons for absence of results. Among the officers of the Spanish Navy the letters "F. N. T." are jokingly said to mean "Fabrica Nada Todavia."

It seems that it would be more logical for the Spanish Government to contract with the Valencia firm to build torpedoes than submarines.

Submarine program

Spain's naval program calls for a total of 28 submarines: of these, only 8 are in service, 3 of them having been obtained in Italy, 1 in the United States (about 1917), and 4 were built in Spain. Of the latter, 1 entered the service in 1922, the other 3 in 1923 and

1924. Two more submarines are practically ready for service, and 6 others are under construction at Cartagena. This leaves 12 not yet begun.

Construction in Valencia is doubtful.—There is perhaps no foundation for the rumors that contracts for some of these submarines will be given to the “Union Naval de Levante,” Valencia, though that firm likes to create the impression. The shipyards owned by the Spanish Government and operated by the “Sociedad Espanola de Construcion Naval” are very short of work; it hardly seems reasonable that they would leave their own yards idle and let contracts to outsiders. One point for consideration, however, is the claim of the Valencia firm, with its German technical experts, that they have the authority to build in Spain submarines of the German Admiralty type. I believe that the rights for foreign construction of the German Admiralty type submarines are dispensed by a company in Holland.

Submarine service very efficient.—The submarine service of the Spanish Navy is said to be more efficient than the surface squadrons. They take good care of their submarines, give them a lot of overhaul, use them often, and do a lot of practice work with torpedoes (practice head) at a point along the shore near Cartagena; unfortunately they have no practice at live targets. This contrasts greatly with the British squadrons that visit the Mediterranean coasts of Spain; they are continually practising with torpedoes at moving targets, and several of the practice torpedoes are almost always picked up after the British visits. The Spanish submarine officers are very active; unlike the gunboats (that seem to hate to get out of the harbor) the submarines seem to like to get out, and they seem to have sufficient appropriations to enable them to do a great deal of practice.

SYRIA

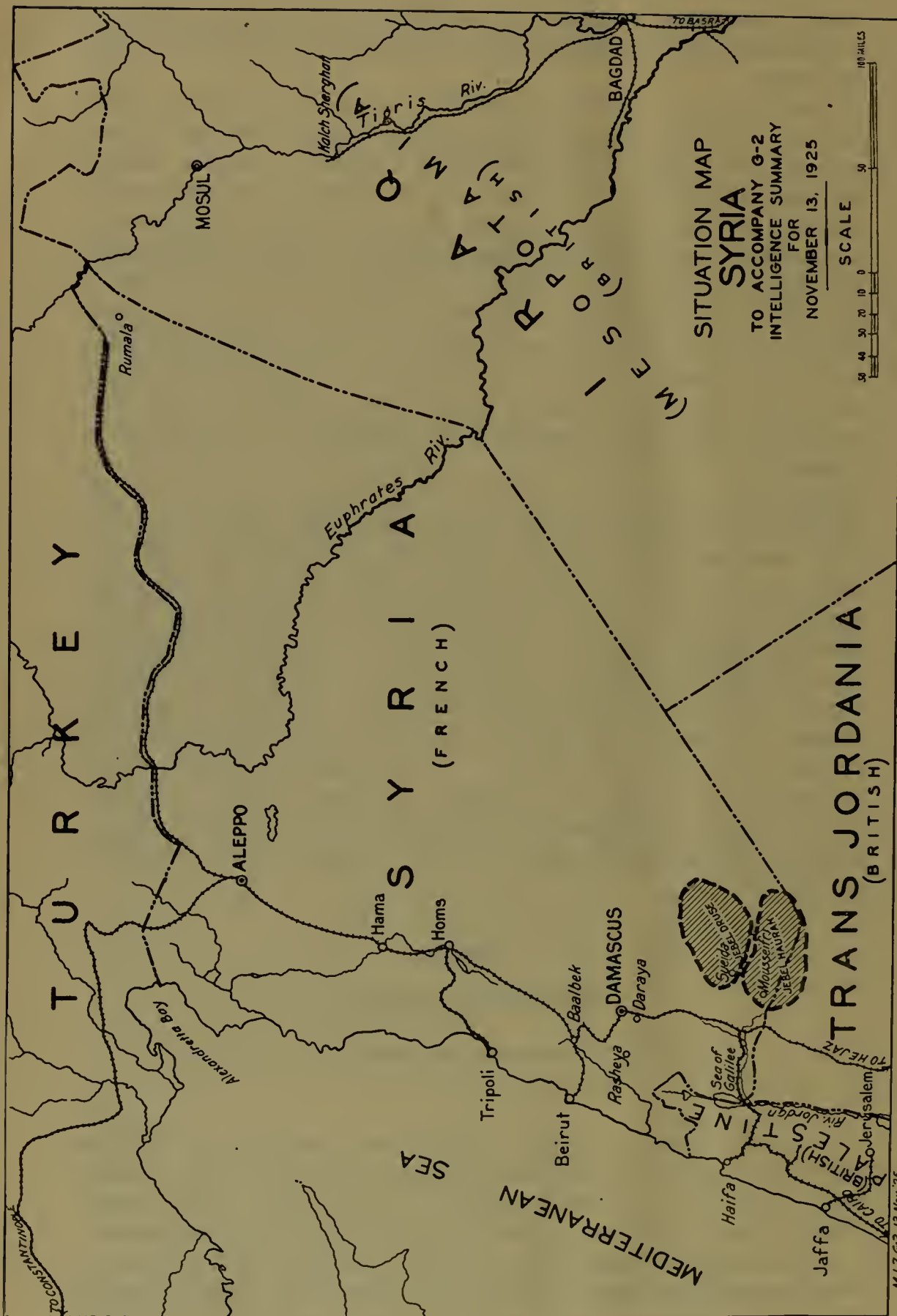
PRESENT CONDITIONS

November 15, 1925

[Source: M. I. D.]

Authentic reports received within the last week indicate that the revolution started by the Djebel Druses in southern Syria is assuming more and more serious proportions and spreading rapidly northward. The situation seems likely to get worse before it gets better.

This is the sixth insurrection in Syria since the French occupation, the first occurring in 1919. The second, that of the Alaquites under Sheik Benali, was sporadic from 1919 to 1921; the third in 1921, in the



M.17, G-2, 13 Nov. 25.

northern mountains, was led by Ibrahim Bey Hanano; the fourth, in the Hauran, in 1922, was under Sultan Pasha Atrash; the fifth, in the Baalbek region, last year, was under Melhem Kassen; the present, which is also led by Sultan Atrash, is quite evidently the most serious of all. The revolt in the Djebel Druse territory in 1922, led by Atrash, received sufficient local support to make it necessary for General Weygand (then high commissioner of Syria) to organize a military expedition to subdue the uprising, which took six months to quell. The French losses from 1920 to July 31, 1925, were 173 officers and 5,867 enlisted men killed. It is estimated that the losses since August 1 have been 2,400 killed, wounded, or captured; this does not include the recent Damascus disorders.

The withdrawal of troops from the interior towns, to reinforce the units operating against the Druses besieging Sueda, left such cities as Aleppo, Homs, and Hama virtually unprotected. The bedouins (Nomads), aware of the weakness of the garrisons and always eager for plunder, moved their encampments much closer to the cities than they have been permitted to be for years. On October 3 a rebellion broke out in Hama. A bombardment of the Moslem quarter of the city, similar to the bombardment of the Moslem section of Damascus on October 26, is said to have caused intense resentment among Mohammedans throughout the country. It appears that the Moslem population, largely because of the unpopularity of the French and the dislike for General Sarrail and his administration, had all been viewing the Druse revolt not without favor, and there was only needed some such incident as that at Hama to start a more general feeling of dissatisfaction. The bombardment of Damascus is stated to be more than the Arabs could further endure and it is reported that they have thrown in their lot with the Djebel Druse tribesmen, the combined forces showing determination to wage bitter warfare against France as the mandatory country.

According to the best information, the rebellion in Syria now centers around Ramadan Ibn Shellash and Nessib Bey Bakri. Shellash has assumed control of military affairs and Bakri has proclaimed himself President of the Syrian Republic. French officials say that Bakri hopes to capture Homs and establish a provisional government for the purpose of calling the attention of the League of Nations to the Syrian condition. Dr. Abdul Rahman Shahbender, formerly president of the People's Party of Syria, is a prominent leader in the present nationalist movement. Shahbender's program includes a general rebellion and the expulsion of the French.

Since the French forces shelled sections of Damascus, the military situation has been tense. Moussefri, a large French fortified camp about 25 kilometers south and west of Sueda in the Djebel Druse

territory, was evacuated November 6, owing to the regrouping of the French forces. The Druse tribesmen have seized Daraya, about 7 miles south of Damascus, and the Haifa-Damascus railway near Daraya has been cut. Numerous Druse and Belouin bands have been reported in the vicinity of Hama, Aleppo, and Homs. From other parts of the country come reports of uprisings and general disorder. Druse bands have raided villages in the Bekaa plain at the foot of Mount Hermon, and have attacked the town of Rasheya in the same district.

Within the last few weeks 10,000 French reinforcements have arrived in Syria, including much cavalry. Though restricted in their scope due to the small amount of cavalry available, the French cavalry operations in Syria have been quite successful and it is now stated that preparations are being made to send two cavalry regiments, in all 3,000 to 4,000 troopers, to clear the region between Damascus and Homs to the north. Until now, the rebels have had the advantage in mobility north of Damascus, the bulk of them being mounted, the French cavalry having been employed mostly in operating against the Druses to the south.

The United States destroyers *Lamson* and *Coghlan* arrived at Beirut as a precautionary measure to insure protection of American citizens, and the American military attaché at Constantinople is en route to Beirut to assist Americans, if necessary. The French are said to interpret the presence of these destroyers as an indication that the United States Government lacks confidence in French control of Syria.

General Sarrail, the French high commissioner, has been summarily removed from his post and ordered to Paris to account for his military rule in Syria. This officer has the reputation of being difficult to serve with and has more than once given trouble to his superiors. His services as commander of the third French army during the first Marne campaign were considered superior; Sarrail held his difficult position successfully against the army of the German Crown Prince until the German retreat began on the Paris end of the line. As commander of the allied armies in Salonica, the French considered that he was unsatisfactory; he was relieved in December, 1917, and remained without command until his retirement in April, 1918. Mr. Herriot appointed Sarrail high commissioner to Syria November 29, 1924, for political reasons. Senator Henry de Jouvenel, editor of *Le Matin* and an ardent champion of the League of Nations, has been appointed as Sarrail's successor.

While it would appear that a large share of the responsibility for the shocking destruction within Damascus three weeks ago should

be placed at the door of General Sarrail, the powers will hardly be satisfied if Sarrail is made the scapegoat and the status quo of unrest and revolt is allowed to persist in Syria. The trouble is that Syria was handed over to France as mandated territory by the League of Nations for political reasons. It was part of the bargaining at Versailles that, when the mandate over Mosul was awarded to Britain, France should receive the counterbalance of Syria. It was the old "Mediterranean policy" applied in a wider sphere of world affairs.

Vigorous protests have been filed with the French Foreign Office over the ruthless bombardment of Damascus. Neither British nor American nationals were given any warning of the training of guns on sections of the ancient city. The question at once arises, if France is deprived of the mandate, what power will be willing to assume it. The logical nation to take over the guardianship would be Britain. The majority of Syrians would favor such a transfer, but public opinion in England would not favor the enlarging of British commitments in the Near East. The withdrawal of all forms of foreign suzerainty over Syria would probably bring about a worse condition of disorder than now exists.

It is most decidedly to the present interest of Great Britain, that France remain in Syria. Yet it is exceedingly damaging to European prestige to have such a catastrophe as that enacted at Damascus occur in mandated territory. Britain is bound to feel the repercussions of this state of things. Were France to withdraw, it is difficult to see what would prevent the Turks from again occupying Syria, an eventuality which Great Britain would not relish. Certainly Great Britain is facing many of the same problems in Palestine, Iraq and Transjordan which are confronting France in Syria, and it is quite probable that she would be glad to have France bear a large part of the burden of keeping the Arabs in check. Syria, like Palestine, was really the conquest of Lord Allenby and his Arab auxiliaries. Damascus, as well as Jerusalem, fell to British arms. But the French could not bear to see that whole region of the Near East from Aleppo to Bagdad pass under British control. France received the mandate and will probably make every effort to keep it, notwithstanding the fact that she gets nothing out of Syria save trouble and expense.

It should be borne in mind that Turkey will certainly continue to plan for the reconstruction of her old empire. Turkey's victories over Greece and her recent diplomatic accomplishments in dealing with western nations have not only raised her pride and passion

to a broader point of view, but have given her a very profound influence all over the Near East.

Recently it was reported that 5,000 more Turks have crossed Syria to reinforce the already large detachments that are massed along the Mosul border. While it is stated that France permitted such a movement, it is more than likely that, under the present chaotic condition of the country, she had no power to stop them. Yet there is no disguising the fact that the marshaling of these troops constitutes a direct menace to British power and that the league will have a difficult task in enforcing the decision of The Hague Tribunal with regard to the future of Mosul if these soldiers are camped on the border between Turkish and disputed territory.

The rise of the Mohammedan peoples in Syria, Morocco, Cirenaica, and Mesopotamia against what they term the foreign dictation of Christian nations is beginning to assume the proportions of an epochal event. The Riffs in Morocco, the Berbers of Lydia, the Druses of Palestine, the Arabs of Syria, and the Turks of Mesopotamia seem animated by the common impulse to drive the Europeans out. About the only thing in common between these peoples is hatred of Europeans and of Christians; it is an age-old struggle that has proceeded intermittently ever since the Crusades, and with varying fortunes.

In addition to religious fanaticism, the French and English are fighting a redoubtable enemy, the desert. And it is difficult to fight the desert with ground troops. Realizing this, both the French and the English are waging extensive campaigns from the air. The airplane is an effective weapon against the tribes of the mountains and the desert, particularly for purposes of reconnaissance. But the airplane attacks scatter the enemy without capturing or wholly destroying him. The air attacks are, for this reason, undecisive. The Mohammedans scatter and unite again.

There is no prospect of an immediate peace. The Mohammedans are so divided among themselves that there is none to speak with authority for them as a whole. Fighting them is like conquering a brush fire; the flames are extinguished in one place only to flare up in another.

November 30

The latest dispatches from Syria indicate that the military activities have been gradually transferred from the Jebel Druse territory to Lebanon, this State having become the center of the uprising against French rule. The aspect developing is that the French find

themselves more and more facing an armed nationalist movement in contradistinction to scattered bands of insurgents operating in isolated districts.

Though the former high commissioner in Syria, General Sarraïl, testifies that the rebellion is not an internal quarrel but the symptom of a vast religious and racial revolt that is sweeping the Islamic world, the insurrection appears to be essentially a political conflict between the Arabs and the French. In the fiery Arabian temperament, however, political animosity merges only too easily with religious prejudice. The Christians of Syria, forming about one-fifth of the total population, are thus placed squarely between France's imperialist steam roller on the one side and Arabian opposition to French rule on the other. Many of the Christian communities, after pledging themselves to neutrality, have been incited to oppose the insurgents. Druse leaders have asserted that the French are the ones attempting to stir up a religious or "holy" war.

When the Syrian Federation, consisting of the States of Damascus, Aleppo, and the territory of the Alaouities, was organized in 1922, Lebanon and the Jebel Druse people expressed their wish not to be included in the federation, and that matters of common concern should be settled by separate agreements made with the federation, assisted by the high commissioner of the mandatory power; Lebanon and Jebel Druse were granted autonomy under the plea.

The cry of self-determination which echoed throughout the world after the war and the patchwork of little governments, mandates, and dependencies which mark the modern map have given a temporary speaking part, on the political stage, to a number of peoples and tribes of whom, previously, little was known. The Spaniards have had trouble for years with Moroccan tribes, but it is only recently that the world heard of the Riff warriors under the leadership of Abd-el-Krim. Similarly, the trouble center in the Hauran Mountains of southeastern Syria has served to introduce to the world the Jebel Druses, a people whose name previously had rarely been heard.

The revolt, which is now centered in Lebanon, has brought to the fore many ancient towns famous in Biblical and secular history. Sidon, which was almost always referred to in connection with Tyre, its neighbor on the coast a few miles south, was an important city of the Phoenicians. The Druse forces now threatening Sidon are commanded by Zaid Atrash, a brother of the Sultan Atrash, leader of the uprising.

TURKEY

THE TURKISH NAVY

[From a consular report]

It was Turkey's army which nullified the treaty of Sevres and regained for the nation its sovereignty among the peoples of the world. In this struggle its navy, as an arm, was nonexistent. It is small wonder therefore that, from the inception of the new republic, this branch of the country's military force received comparatively little attention at the hands of the young government. For years the few units left over from the war period lay in the Golden Horn under the watchful eyes of the allied forces of occupation, and not until October, 1923, did their existence and utilization as a part of the country's defense become a possibility. Since then much has been written on the subject by Turkish newspapers, but the funds required for reconditioning were unavailable. Nor is it surprising that Turkey's leaders should have given more attention to the army, which has saved the nation, than to a navy which had not fired a gun in its defense.

However, there it was and something had to be done with it. Without attention a few more years of neglect would have made it worthless. It was also necessary to think of training a suitable personnel, for after all Turkey has a long coast line, washed by three seas, and the use of a mobile sea force, however small, could render the army effective service in repelling eventual invasions.

Angora finally heeded the call and in its first budget voted about 3,000,000 Turkish pounds. This was not very much, but nevertheless sufficient to bring one or two of its ironclads into the Bosphorus and attempt a few trips to the Black and Ægean Seas. This small sum permitted dry-docking and some minor repairs, most of which were executed by the vessels' crews, and, with a few coats of paint, a half dozen of the resurrected ships gave the appearance of efficiency, even though their machinery and armament may have proved dangerous to their crews only.

The start was made. Then Greece sent some of its war vessels to foreign arsenals for reconditioning, and Turkey realized that action on its part was not only necessary but wise. There was much talk of purchasing commissions to be sent abroad but only one purchase was made, a British tugboat, which was to be converted into a mine layer. The wisdom of this purchase was severely criticized by the press, but it helped in showing the necessity of creating a separate ministry for naval affairs headed by competent officials. These prepared a logical program, both for the gradual reconditioning of the ships available as well as the training of requisite per-

sonnel for their operation. At the same time the constitution of a supplementary air force became a reality under the tutelage of the French at Smyrna, and then with the beginning of the present year the outline of a definite naval program began to take shape, for which funds were made available by the assembly in April. It is true that the amount of money allocated for the purpose is no more per year than the sum credited in the first budget, but it is certain that a similar amount will now be forthcoming for at least the next five years, and according to the provisions of the law repairs may be contracted for against the entire five years' credit, which will permit the carrying out of a definite program of reconditioning and should by the end of that period, even if additional sums are not added, assure the country an effective patrol of its coast line.

PURPOSE

Turkey's financial condition at the present time is such as to preclude the probability of using her armed forces for anything other than defense. The comparatively small sum allotted for the use of its navy substantiates this. The purpose of the latter is therefore presumably for the patrol and defense of her coast line, which is, roughly speaking, 2,000 miles in Asia Minor. In addition to this there are the short coast lines of Thrace and the straits, to the internationalization of which Turkey has agreed. According to the treaty of Lausanne, the maximum naval force that may pass through the straits into the Black Sea may not exceed that of the most powerful nation bordering on the Black Sea. This provision, in a measure, may be said to restrict naval operations there so long as the navies of the Black Sea countries retain their present status. Under the same agreement the powers reserved to themselves the right to send to the Black Sea at any time a naval force not to exceed three vessels of 10,000 tons each, the actual number and size of the men-of-war which may enter the Dardanelles and the Bosphorus being subject to the regulation of the straits commission, as provided for in the treaty referred to.

Bulgaria has no navy. Rumania and Russia are therefore Turkey's only Black Sea opponents, and the navy of the former consists principally of some 30 Danube River monitors, gunboats, and destroyers. The best of Russia's one-time Black Sea squadron is deteriorating at Bizerta, but the Soviets may in time come into possession of the dreadnaught *Wolga*, the protected cruiser *Kagul*, as well as the other vessels detained there. For the moment the Turkish Republic maintains relations of friendship guaranteed by a formal pact with Russia. This state of affairs may continue indefi-

nately, and as long as the Russian ships mentioned remain at Bizerta there may be little to fear from its neighbors to the north. What, then, is Turkey's desire for naval power?

The London Times, in its issue of May 26, views Turkey's naval program with alarm and sees in it a recrudescence of naval competition in the Near East. It summarizes the situation as follows:

Under the treaty of Lausanne the limitation of naval armaments imposed upon Turkey by the treaty of Sevres was withdrawn. It was fondly hoped that the cessation of all important construction in the Russian Black Sea yards and the obvious desire of Greece, which has limited her naval program to the reconditioning of four destroyers and the purchase of two small submarines, for a "naval holiday" would induce the Turks to confine themselves to the purchase of a few submarines and torpedo craft for the defense of the Bosphorus and the Dardanelles. The decision to repair the *Goeben* may destroy the hope that the Near East will escape a new competition in naval armaments. Greece, dependent on the command of the Aegean for the rapid concentration of her forces in Macedonia and Western Thrace, will probably feel compelled to purchase warships, which the Hellenic exchequer can ill afford, in order to counterbalance the Turkish effort. The Soviet government will probably avail itself of this excuse to resume naval construction at Sevastopol and Nikolaieff. Rumania will, in turn, desire to strengthen her existing torpedo flotilla. The Turks, if gratified by the fact that the reconstructed *Goeben* will be double the size of any single warship which any of the western powers is allowed by the Straits Convention of Lausanne to send to the Black Sea through the Sea of Marmora, may find themselves militarily no stronger for the possession of a military naval monster, which they will be tempted to keep "in cotton wool" in the event of war with any neighbor. They will almost certainly discover that their Government's decision has aroused political mistrust and naval rivalry. The *Goeben's* escape from the allied fleets into the Dardanelles in the early days of the war greatly contributed to the entry of Turkey into the struggle with all its calamitous results. Her return to the effective list of the Ottoman Fleet may be fraught with disagreeable financial and political consequences for the "new Turks," as well as for their neighbors. It is a pity that the treaty of Lausanne did not provide for the disarmament or the demolition of this politically ill-omened "Flying Dutchman."

In considering the foregoing it may be pertinent to note that a British admiral presides over the reconstitution of Greece's naval forces; its four largest destroyers were reconditioned in British shipyards; and for what purpose other than against its historical enemy should Greece be mistress of the Aegean in order to assume the "rapid concentration of her forces in Macedonia and Western Thrace?"

Turkey realizes this and its present naval efforts are doubtless directed more toward the protection of its western coast and shipping than toward any possibility of danger from its Black Sea neighbors.

PRESENT CONDITIONS

During the year and a half that the remnant of the Ottoman navy has been in the hands of the new government, very little progress has been made in its refitting. It can hardly be called seaworthy. It is true that funds were lacking and most of the work had to be done by the vessels' crews with whatever equipment and means were at their disposal. Several of the larger and less deteriorated units were able to leave their bases and some maneuvers were even attempted. But usually after only a small excursion the vessels had to return for further repairs.

A. SHIPS

The fleet as it stands to-day, i. e., those units which have not on account of utter deterioration been delated from it, is presented in the following table, in the compilation of which the 1924 edition of "Jane's Fighting Ships" was consulted:

| No. | Name | Type | Ton- nage | Built | Dimensions (feet) | Armament | Speed (knots) | Comple- ment | Conditions |
|-----|------------------------|------------------|--------------|-------|-----------------------------|--|------------------|-----------------|--|
| 1 | Yawuz Sultan Selim. | B. C. | 22,640 | 1911 | 610' 3" x 96' 10" x 26' 11" | 10 11" G. | 25 | 1,013 | Originally the German battle cruiser Goeben. Has 2 unrepai red holes in hull under water line; only 2 of 24 boilers in condition. |
| 2 | Toungout Reis. | B. | 9,901 | 1891 | 379' 8" x 64' x 24' 8" | 6 11" G.; 2 A. A. G.; 4 M. G.; 2 18" T. T. | 15 | 579 | Originally the German battleship Weissenburg, purchased in 1910, refitted in 1923-24 and now used as training ship for naval cadets. |
| 3 | Hamidieh. | L. C. | 3,830 | 1903 | 368' x 47' 6" x 16' | 2 5.9" G.; 6 2.9" G.; 2 18" T. T. | 14 | 302 | Probably in best condition of any of ships. |
| 4 | Medjidieh. | L. C. | 3,300 | 1903 | 225' x 40' x 17' 6" | 4 5.1" G.; 4 M. G. | 22 | 365 | Being reconstructed. It is proposed to adapt this ship for mine laying. |
| 5 | Peik-I-Shevket. | T. G. | 1,014 | 1906 | 262' 6" x 27' 8" x 9' 6" | 2 2.9" G.; 4 6-pdrs.; 3 T. T. | 22 | | Now in service. Its sister ship, Berk-I-Satvet, now noneffective. |
| 6 | Samsoun. | French type | 290 | 1907 | 185' x 21' x 9' 6" | 2 9-pdr. G.; 6 1-pdr. G.; 2 18" T. T. | 29 | 67 | Being refitted. |
| 7 | Basra. | destroy- ers. | | | | | | | |
| 8 | Tashoz. | | | | | | | | |
| 9 | Sultan-Hissar. | T. B. | 98 | 1906 | 124' x 14' x 4' 6" | 2 1-pdr. G.; 3 18" T. T. | 26 | 18 | Boilers in bad condition. |
| 10 | Sivri-Hissar. | | | 1906 | | | | | |
| 11 | Diradj. | | | 1905 | | | | | |
| 12 | Ak-Hissar. | T. B. | 160 | 1904 | 167' x 18' x 4' 6" | 2 1-pdr. G.; 2 14" T. T. | 24 | 20 | Do. |
| 13 | Moussoul. | | | 1905 | | | | | |
| 14 | Younous. | T. B. | 145 | 1902 | 165' 6" x 18' 6" x 5' 6" | 2 1-pdr. G. | 27 | 20 | Do. |
| 15 | Aidin Reis. | G. B. | 502 | 1912 | 178' 6" x 27' 10" x 8' | 2 3" G.; 2 6-pdr. G. | 14 | | |
| 16 | Burek Reis. | G. B. | 502 | 1912 | 178' 6" x 27' 10" x 8' | 2 3.9 G.; 2 6-pdr.; 4 M. G. | 14 | | All refitted during 1924-25. |
| 17 | Sakis. | G. B. | 502 | 1912 | 178' 6" x 27' 10" x 8' | 1 3.9" G.; 2 6-pdr. G. | 14 | | |
| 18 | Prevesa. | G. B. | 502 | 1912 | 178' 6" x 27' 10" x 8' | 2 3" G.; 2 6-pdr. G. | 14 | | |
| 19 | Keinal Reis. | G. B. | 413 | 1912 | 154' 3" x 25' 9" x 4' 6" | 3 3" G. | 14 | | Refitted in 1923. |
| 20 | Hizir Reis. | G. B. | 413 | 1912 | 154' 3" x 25' 9" x 4' 6" | 2 3-pdr. G. | 14 | | |
| 21 | Issa Reis. | G. B. | 413 | 1911 | 154' 3" x 25' 9" x 4' 6" | 2 M. G. | 14 | | |
| 22 | Muir-I-Zaffer. | T. S. | 2,263 | 1869 | | | | | This is an old central battery ironclad used as a training ship for boys. |
| 23 | Ertogrul. | Yacht. | 964 | 1903 | 260' x 27' 11" | 8 3-pdr. G. | 21 | | Being refitted for use as a presidential yacht. |
| 24 | Sugutlu. | Yacht. | 188 | 1903 | | | 14 | | In good condition. |
| 25 | Reist. | M. L. | | | | | 8 | | Mino layer, purchased in England for £3,000; formerly a tugboat. Data non-available. |
| 26 | 9 motor launches. | M. B. | | 1911 | 2' 6" draft. | 1 M. G.; 1 small Q. F. | 11 | | Used for eunoms, police, and coast-guard duties. |
| 34 | | | | | | | | | |
| 35 | Intibah. | Tb. | 616 | 1866 | 202' x 30' x 12. | | 12 | | Seagoing tugboats, 1,670 H. P. |
| 36 | Selamluk. | | | | | | | | |

Explanation of abbreviations:

Type—
 B. = Battleship.
 B. C. = Battle cruiser.
 L. C. = Light cruiser.
 T. G. = Torpedo gunboat.
 T. B. = Torpedo boat.
 G. B. = Gunboat.
 T. S. = Training ship.
 M. L. = Mine layer.
 M. B. = Motor boat.
 Tb. = Tugboat.
 Armament—
 G. = Guns.
 M. G. = Machine guns.
 Pdr. = Pounder guns.
 T. T. = Torpedo tubes.
 A. A. = Antiaircraft.
 Q. F. = Quick-fire.

¹ Rebuilt in 1903.

² Designed.

The same authority quoted gives the navies of Turkey's neighbors as follows:

| Greece | | Rumania | | Russia (Black Sea) | | Bzoria | | Yugoslavia | |
|--------------------------------|------------|-------------------------|-----------|----------------------|------------|------------------------|-------|------------------|-----------|
| Units | Built | Units | Built | Units | Built | Units | Built | Units | Built |
| 6 battleships | 1899, 1908 | 8 monitors (Danube) | 1907-1915 | 1 light cruiser | 1915 | 1 dreadnought, Wolyn | ----- | 12 torpedo boats | 1913-1915 |
| 1 armed cruiser | 1910 | 4 gunboats (Black Sea) | 1916-17 | 2 destroyers (unfin- | ----- | 1 protected cruiser, | ----- | 4 river monitors | 1892-1913 |
| 1 light cruiser | 1912 | 2 destroyers | 1918-19 | 2 destroyers (fin- | ----- | 1 knight | ----- | 6 mine layers | ----- |
| 11 destroyers | 1906, 1912 | 13 torpedo boats | 1920-21 | 2 torpedo boats | 1901 | 7 destroyers | ----- | 4 mine sweepers | 1886 |
| 12 torpedo and patrol boats | 1913-1915 | 6 motor launches | 1920-21 | 4 submarines | 1916, 1922 | 4 scout vessels | ----- | 1 training ship | 1908 |
| 4 mine layers | 1881 | 2 training ships | 1882-1887 | 1 submarine | 1887 | 5 submarines | ----- | 8 miscellaneous | ----- |
| 2 submarines | 1925 | 1 royal yacht | 1870 | 1 mine layer | 1891 | 1 armed yacht | ----- | misc. | ----- |
| 7 old gunboats | 1884 | 1 depot vessel | 1912 | | | 11 repair vessels, ice | ----- | | |
| 1 collier | 1903 | 3 gunboats, coast guard | 1888 | | | breakers, transports, | ----- | | |
| 1 oil tanker | 1889 | vessels, | | | | etc. | ----- | | |
| | | 21 steam tankers | 1890-1924 | | | | | | |
| 3 mercantile fleet auxiliary.. | 1885 | 6 police boats | 1882-1900 | | | | | | |
| | 1906 | 3 small patrol craft. | | | | | | | |
| | 1920 | | | | | | | | |
| 1 gunnery training ship | 1879 | | | | | | | | |
| 2 mine-sweeping trawlers | 1877 | | | | | | | | |
| 1 hospital ship | 1876 | | | | | | | | |
| 1 torpedo depot ship | 1877 | | | | | | | | |
| 2 motor launches | 1916 | | | | | | | | |

1 Personnel, about 14,000.
Bulgaria has no armed sea force.

A comparison of these fleets shows that Turkey will probably rank second in naval strength following the completion of its present program. Russia, however, will always remain an uncertain factor until the disposition of the ships at Bizerta will have been decided upon.

B. NAVAL BASES

There are three. Constantinople, which at present is the seat of the arsenal, Smyrna, and Ismid. The latter will probably become the principal naval base. It is on the Anatolian side and is said to offer the best advantages. Besides, from the Turkish point of view, the strategic value of the Golden Horn has been lost with the internationalization of the straits, and Constantinople is therefore considered as of no importance as a naval base under these conditions.

C. REPAIR FACILITIES

The Constantinople arsenal and a number of marine repair shops here offer the best facilities: at Stenia, about 6½ miles up the Bosphorus from Constantinople, there is a floating dock of 9,500 tons lifting equity.

The arsenal, which is the Turkish naval dockyard on the Golden Horn is equipped with three dry docks, and one floating dock of the following dimensions:

| Length (feet) | Breadth (feet) | Draft of water (feet) | Light pace, etc. |
|--------------------------|----------------|-----------------------|--|
| No. 1 dry, 388..... | 72 | 28 | { Floating sheer legs, lifting, 70-ton. Stationary sheer-legs, lifting, 70-ton. Small floating crane, lifting, 8-ton. 170 tons. |
| No. 2 dry, 279..... | 62 | | |
| No. 3 dry, 500..... | 63 | | |
| No. 4 floating, 152..... | 63 | | |

The repair facilities available at Constantinople are as follows:

| Shipyards, machine shops, etc., having facilities for repairs to steamers | Character of repairs, large or small |
|---|---|
| Armstrong, Vickers Co. is negotiating with Turkish authorities for a contract to operate the Turkish naval dockyard which is now being operated by the Turkish Government. ¹ | Large and small. |
| Docks at Ateliers du Haut Bosphore | Equipped to do any oxy-acetylene welding. |
| H. Isler Marine Engineering Co..... | Do. |
| The Jones Engineering Co..... | Do. |

¹ The British, Armstrong-Vickers Co., before the war, entered into an agreement with the Turkish Government for the operation of the marine arsenal on the Golden Horn. However, the war prevented the execution of the convention entered into. The creation, by the company, of marine works at Ismid for the construction of war vessels was also envisaged in the agreement. With the declaration of war the British, of course, had to leave the work begun there and the arsenal reverted to Turkish administration. Following the armistice, the establishment was again put in the hands of the Armstrong-Vickers Co., which directed its work until, with the treaty of Lausanne, the present government refused to recognize the company's rights, and an article was included in the treaty referred to whereby the Turkish Government must come to an agreement with the company in question after the treaty's signature. Pourparlers to this end are under way, but only preliminary discussions have taken place so far.

| Shafts—diameter and length of largest that can be made | Pipes — diameter of largest that can be brazed | Remarks |
|---|--|---|
| Lathes of 5 feet diameter; face plates, 28 feet between centers; lathes with 22 to 8 foot beds. | All pipes regardless of size. | Engine, boiler, and ship repairs of cargo vessels can be made here. |

THE NAVAL PROGRAM

Toward the end of June, 1925, Ihsan Bey, the Turkish Minister of Marine, completed the inspection of Turkey's naval forces and establishments. From declarations made by him to the local press the following may be summarized as the present naval program.

1. *The "Yavuz."*—The reconditioning of this ship appears to enter into the foreground of the proposed reconstruction. The work is to be done in Turkey by means of a floating dock to be ordered in Europe (it is rumored that a 26,000-ton dock has been ordered in Germany). This dock is to be delivered within a year's time.

2. *The naval school at Halki.*—The one-time Greek commercial school at Halki, is to be made into a naval school for the instruction of navy personnel and officers, and is to become the national center of naval instruction.

3. *A "Maritime League."*—It is proposed to recreate the Turkish Maritime League in the interest of the navy.

4. *The fleet.*—It is proposed to concentrate all efforts toward the creation of a small fleet, efficient in every detail but of sufficient strength to meet all possible exigencies. In the event of hostilities it is to be capable of retaining absolute mastery of all Turkish waters.

5. *Old vessels.*—All ships not actually deleted from the fleet are to be reconditioned within three months. All navy personnel is to be sent to sea for practical instruction. The fuel necessary is already in storage for the purpose.

6. *Instruction by foreign specialists.*—The officers who are to be engaged for this purpose must not be on the active list of any foreign navy. They are to have no grade, and will not be permitted to wear uniforms. In this way it is intended to avoid giving any command to a foreigner to the detriment of the efficiency of Turkish officers in the event of a crisis.

It is proposed to create a school of command with the aid of these foreign specialists, and every officer will have to undergo instruction therein. The fleet will be at the disposal of this school to permit of the practical application of its instruction on board. In this manner it is believed that those worthy of being intrusted with the higher commands will be the most quickly developed.

7. *The naval budget.*—The 15,145,000 Turkish pounds available will be used for the achievement of a program which has been elab-

orated in accordance with the general staff. This sum will be utilized so that during the next five years it will serve for the reconditioning of the coast defense, defense of the straits, and creation of naval bases.

Decisions have already been taken regarding new units to be acquired, based upon a definite program which will remain unchanged during the period stated.

In this connection it may be of interest to quote the law which was passed by the national assembly making the sum mentioned available.

Law relative to the extraordinary budget of the navy. (From the Journal Officiel, X No. 92, of April 14, 1341 (1925)).

ART. 1. An extraordinary credit of fifteen million one hundred and forty-five thousand (15,145,000) Turkish paper pounds is accorded to the ministry of the navy. This credit will be apportioned in equal amounts in five annuities beginning with the 1341 (1925) period. The credits which could not be utilized during the period accorded may be carried over to succeeding periods.

ART. 2. On the basis of the credits mentioned, the ministry of the navy is authorized to effect, with the approval of the council of commissaries, and by contract from time to time, all sorts of construction and repairs; make all kinds of purchases and orders, and even on the basis of these credits enter into contracts stretching over the five-year period.

ART. 3. The minister of finance is authorized to utilize as extraordinary receipts, the superior value of the sale price of obsolete units of the fleet, or transport vessels, or the price of structural material equally rejected, as well as the superior value of the price accruing from the sale of government property, in order to cover the extraordinary credits mentioned in Article 1.

ART. 4. This law will enter into effect on the date of its publication.

ART. 5. The minister of the marine and of finance are charged with the execution of this law.

CONCLUSION

Perhaps the foregoing is evidence of the revival of Turkish naval ambitions which certain foreign newspaper writers appear to view with alarm. It seems, however, that the country's naval program, as outlined, would hardly warrant any uneasiness on this score. Turkey is endeavoring to put its merchant flag once more on the sea and it has a long coast line to protect. What is more reasonable, then, than that it use the means available to accomplish this purpose. The reconditioning of a few naval vessels, already obsolete, and the building up of an efficient naval personnel, appears to be the country's sole object now. Funds certainly are lacking for anything more pretentious, and this is undoubtedly the best insurance against Turkey's entering into naval competition with its neighbors of the Near East.



